

## 2001 Chevrolet S10 Pickup

2000-01 MANUAL A/C-HEATER SYSTEMS Blazer, Jimmy, Sonoma & S10 Pickup

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## SPECIFICATIONS

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Application	Specification
Compressor Type	
2.2L Engine	Harrison V7 7-Cyl.
4.3L Engine	Harrison HT6/HP6 6-Cyl.
Compressor Belt Tension	(1)
System Oil Capacity <sup>(2)</sup>	
2.2L Engine	9 ozs.
4.3L Engine	8 ozs.
Refrigerant (R-134a) Capacity	28 ozs.
System Operating Pressures <sup>(3)</sup>	
High Side	160-228 psi (11.8-15.7 kg/cm <sup>2</sup> )
Low Side	28-32 psi (2.0-2.2 kg/cm <sup>2</sup> )

(1) Tighten serpentine belt until indicator mark on movable portion of belt tensioner is within limits of slotted area on stationary portion of belt tensioner.

(2) Use PAG oil.

(3) Specification is with ambient temperature at 80°F (27°C), relative humidity at 40 percent, and engine speed at 1500 RPM.

## DESCRIPTION

**WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM procedures in AIR BAG SYSTEM SAFETY article in GENERAL SERVICING.**

The A/C-heater system is a blend-air system. Air entering vehicle must pass through evaporator core and through and/or around heater core to obtain desired temperature.

On 2000 models equipped with 4.3L engine, compressor operation is controlled by a pressure cycling switch (located on accumulator). Pressure cycling switch sends signal to Vehicle Control Module (VCM) to energize A/C compressor clutch relay.

On 2000 models equipped with 2.2L engine, based on A/C related inputs to PCM, compressor operation is controlled by Powertrain Control Module (PCM) through A/C compressor clutch relay.

On all 2001 models, compressor operation is controlled by A/C related inputs to Powertrain Control Module (PCM), through A/C compressor clutch relay.

## **OPERATION**

### **A/C-HEATER CONTROL PANEL**

**NOTE:** **The A/C-heater control panel is also referred to as a Heating, Ventilation, and Air Conditioning (HVAC) controller.**

#### **Temperature Control Knob**

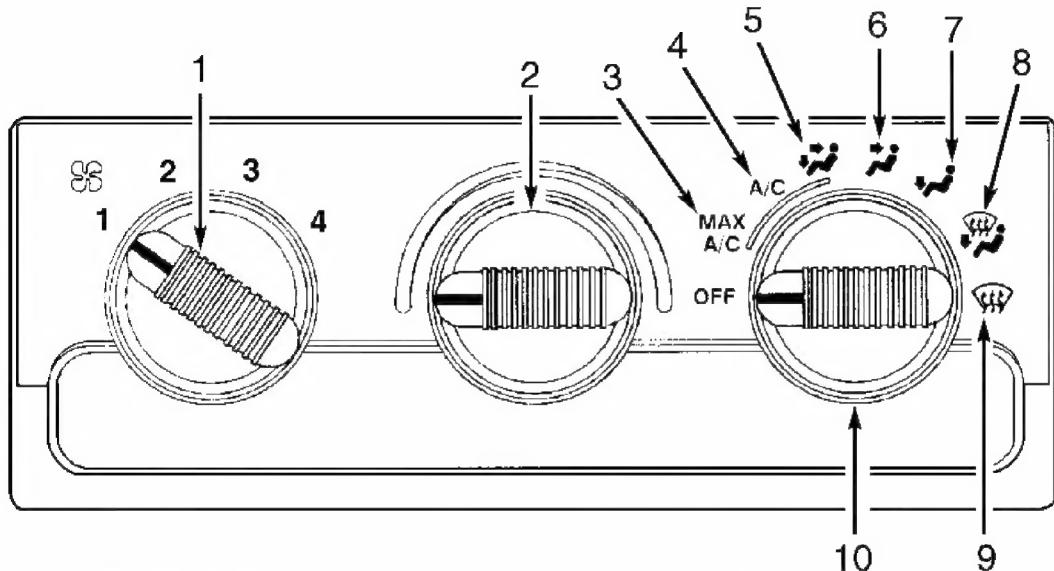
An electric motor controls the temperature door based on temperature knob position. When temperature knob is in the cold (Blue) position, air delivered by system is unheated. When temperature knob is in hot (Red) position, all air passing through heater module is heated before it is discharged. Intermediate position of temperature knob results in a mixture of heated and unheated air to provide more moderate air temperatures. See [Fig. 1](#) .

#### **Mode Selector Knob**

Mode selector knob positions are OFF, MAX A/C, A/C, bi-level, vent, heat, blend, and defrost. Mode selector knob operates a rotary vacuum switch that routes engine vacuum to specific hoses in the vacuum harness. These hoses control various vacuum actuators on A/C-heater system. Each actuator operates an air valve (a door-like hinged deflector) that routes airflow to various outlets throughout the system. See [Fig. 1](#) .

#### **Blower Switch**

Blower switch provides a choice of various blower speeds. Blower switch receives power through fuse in fuse block when ignition is on. In various speed positions, circuit continues through wiring harness to blower motor resistor, near blower motor. There are 4-positions: low, medium-low, medium-high, and high. Blower operates in any mode position except off. See [Fig. 1](#) .



1. Blower Switch	6. Vent
2. Temperature Control Knob	7. Heat/Floor
3. Max A/C	8. Blend
4. Norm A/C	9. Defrost
5. Bi-Level A/C	10. Mode Control Knob

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### **Fig. 1: A/C-Heater Control Panel Functions**

Courtesy of GENERAL MOTORS CORP.

#### **A/C COMPRESSOR CLUTCH CONTROLS**

See A/C COMPRESSOR CLUTCH CONTROLS - ALL MODELS article.

#### **HIGH PRESSURE CUT-OUT SWITCH**

The A/C system is equipped with a high pressure cut-out switch (located on rear of compressor). The switch opens at 410-440 psi (28.2-30.5 kg/cm<sup>2</sup>), interrupting current flow to compressor clutch coil. This keeps compressor clutch from engaging, preventing system damage, and discharging refrigerant and oil from pressure relief valve.

#### **LOW PRESSURE CUT-OUT SWITCH**

On 2.2L engine equipped models, A/C system is equipped with a low pressure cut-out switch. Low pressure cut-out switch is located on the A/C evaporator tube. If ambient temperature is too cold, the switch will remain open to prevent A/C compressor operation in cold weather climates.

## **TROUBLE SHOOTING**

**WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM procedures in AIR BAG SYSTEM SAFETY article in GENERAL SERVICING.**

**NOTE: For additional A/C system trouble shooting information, see MANUAL A/C-HEATER SYSTEMS - TROUBLE SHOOTING article.**

### **BLOWER CONTROLS SYSTEM CHECK**

#### **Preliminary Checks (2000 Models)**

Check fuses, fusible links and circuit breakers. Replace as necessary. Ensure harness connectors are tight and free of corrosion. Ensure ground connections are clean and tight. Operate system through all functions to verify problems.

#### **System Check (2000 Models)**

Turn ignition switch to ON position. Move front or auxiliary blower speed selector switch from low to high positions and listen for increase in blower motor speed at each switch position. Move blower speed selector switch from high to low positions and listen for decrease in blower motor speed. If blower motor is inoperative in any or all speeds, go to appropriate blower motor diagnostic procedure.

## **BLOWER MOTOR**

#### **Blower Motor Inoperative**

See BLOWER MOTOR INOPERATIVE under TROUBLE SHOOTING in HEATER SYSTEMS - RWD TRUCKS & VANS - EXCEPT TRACKER article.

#### **Blower Motor Inoperative At High Speed**

See BLOWER MOTOR INOPERATIVE AT HIGH SPEED under TROUBLE SHOOTING in HEATER SYSTEMS - RWD TRUCKS & VANS - EXCEPT TRACKER article.

#### **Blower Motor Operates At High Speed Only**

See BLOWER MOTOR OPERATES AT HIGH SPEED ONLY under TROUBLE SHOOTING in HEATER SYSTEMS - RWD TRUCKS & VANS - EXCEPT TRACKER article.

#### **Blower Motor Does Imperative At Medium-High (M2) Speed**

See BLOWER MOTOR DOES OPERATIVE AT MEDIUM-HIGH (M2) SPEED under TROUBLE SHOOTING in HEATER SYSTEMS - RWD TRUCKS & VANS - EXCEPT TRACKER article.

**Blower Motor Does Inoperative At Medium-Low (M1) Speed**

See BLOWER MOTOR DOES INOPERATIVE AT MEDIUM-LOW (M1) SPEED under TROUBLE SHOOTING in HEATER SYSTEMS - RWD TRUCKS & VANS - EXCEPT TRACKER article.

**Blower Motor Does Inoperative At Low Speed**

See BLOWER MOTOR DOES INOPERATIVE AT LOW SPEED under TROUBLE SHOOTING in HEATER SYSTEMS - RWD TRUCKS & VANS - EXCEPT TRACKER article.

**Blower Motor Operates Continuously**

See BLOWER MOTOR OPERATES CONTINUOUSLY under TROUBLE SHOOTING in HEATER SYSTEMS - RWD TRUCKS & VANS - EXCEPT TRACKER article.

**TEMPERATURE CONTROL INOPERATIVE**

**2000 Models**

1. Perform **BLOWER CONTROLS SYSTEM CHECK**. Go to next step.
2. Check HVAC I fuse (10-amp) located in instrument panel fuse block. If fuse is blown, go to step 21. If fuse is okay, go to next step.
3. Disconnect air temperature valve sensor and motor connector. Air temperature valve is located on top of HVAC assembly, on passenger's side. Turn ignition switch to ON position. Turn headlight switch to PARK position. Using DVOM connected to ground, probe air temperature valve motor harness connector terminal No. 8 (Light Blue wire). See **WIRING DIAGRAMS**. Move temperature control knob on A/C-heater control panel to hot (Red) and cold (Blue) positions. If voltage reading varies smoothly between zero and 12 volts, go to next step. If voltage reading does not vary smoothly between zero and 12 volts, go to step 9.
4. Using DVOM connected to ground, measure voltage at air temperature valve motor harness connector terminal No. 10 (Brown wire). If battery voltage is indicated, go to next step. If battery voltage is not indicated, go to step 7.
5. Using DVOM, measure voltage between air temperature valve motor harness connector terminals No. 10 (Brown wire) and No. 7 (Black wire). If battery voltage exists, go to next step. If battery voltage does not exist, go to step 8.
6. Replace air temperature valve motor. See **AIR TEMPERATURE VALVE ACTUATOR** under REMOVAL & INSTALLATION. Perform **BLOWER CONTROLS SYSTEM CHECK**.

7. Repair open or high resistance in Brown wire between instrument panel fuse block HVAC I fuse and air temperature valve actuator. Perform **BLOWER CONTROLS SYSTEM CHECK** .
8. Repair open or high resistance in Black wire between air temperature valve actuator and ground G200. Ground G200 is located on firewall, left of instrument panel, near main harness connector to engine compartment. Perform **BLOWER CONTROLS SYSTEM CHECK** .
9. If voltage reading is at or near battery voltage, regardless of temperature control knob position, go to next step. If voltage reading is not at or near battery voltage, regardless of temperature control knob position, go to step 15 .
10. Disconnect A/C-heater control panel 3-pin harness connector C-3. Use a DVOM to measure voltage between A/C-heater control panel 3-pin harness connector C-3 terminals "A" (Brown wire) and "C" (Black wire). Turn ignition switch to ON position. Turn headlight switch to PARK position. If battery voltage is indicated, go to next step. If battery voltage is not indicated, go to step 12 .
11. Replace A/C-heater control panel. See **A/C-HEATER CONTROL PANEL** under **REMOVAL & INSTALLATION**. Perform **BLOWER CONTROLS SYSTEM CHECK** .
12. Move headlight switch to OFF position. If DVOM reading changes to battery voltage, go to next step. If DVOM reading does not change to battery voltage, go to step 14 .
13. Repair high resistance in Black wire between splice pack SP203 and ground G203. SP203 is strapped to instrument panel harness, in front of ashtray. Ground G203 is located in body harness, to right of instrument panel, on firewall below air inlet. Perform **BLOWER CONTROLS SYSTEM CHECK** .
14. Repair open or high resistance in Black wire between A/C-heater controller and splice pack SP203. Perform **BLOWER CONTROLS SYSTEM CHECK** .
15. If voltage reading is at or near zero voltage, regardless of temperature control knob position, go to next step. If voltage reading is not at or near zero voltage, regardless of temperature control knob position, return to step 10 .
16. Disconnect A/C-heater control panel 3-pin harness connector C-3. Using Connector Test Adapter Kit (J 35616-A), connect jumper wires between connector C-3 and A/C-heater control panel terminals. Using a DVOM connected to ground, backprobe A/C-heater control panel 3-pin connector C-3 terminal "B" (Light Blue wire).

Turn ignition switch to ON position. Turn headlight switch to PARK position. Move temperature control knob on A/C-heater control panel to hot (Red) and cold (Blue) positions. If voltage reading varies smoothly between zero and 12 volts, go to next step. If voltage reading does not vary smoothly between zero and 12 volts, go to step 18 .

17. Repair open or high resistance in Light Blue wire between A/C-heater control panel and air temperature valve actuator. Perform **BLOWER CONTROLS SYSTEM CHECK** .

18. Use a DVOM to backprobe between A/C-heater control panel 3-pin connector C-3 terminals "A" (Brown wire) and "C" (Black wire). If battery voltage exists, go to step 23 . If battery voltage does not exist, go to next step.
19. Using a DVOM connected to ground, backprobe A/C-heater control panel 3-pin connector C-3 terminal "A" (Brown wire). If battery voltage is indicated, return to step 11 . If battery voltage is not indicated, return to step 7 .
20. Check HVAC 1 fuse No. 21. If fuse is okay, go to next step. If fuse is faulty, go to step 22 .
21. Repair short to ground in Brown wire between instrument panel fuse block and A/C-heater control panel harness connector C3 terminal "A". Perform **BLOWER CONTROLS SYSTEM CHECK** .
22. Repair open in Light Blue wire between instrument panel fuse block and ignition switch. After repair, perform **BLOWER CONTROLS SYSTEM CHECK** .
23. Disconnect jumper wire from connector C-3 terminal "B" (Light Blue wire). With jumper wire still connected to A/C-heater control panel, use a DVOM to measure voltage between jumper wire and ground. Disconnect air temperature valve actuator connector. Move temperature control knob on A/C-heater control panel to hot (Red) and cold (Blue) positions. If voltage reading varies smoothly between zero and 12 volts, go to next step. If voltage reading does not vary smoothly between zero and 12 volts, go to step 11 .
24. Repair short to ground in Light Blue wire between A/C-heater control panel harness connector C3 terminal "B" and air temperature valve actuator. After repair, perform **BLOWER CONTROLS SYSTEM CHECK** .

## DIAGNOSTIC SYSTEM CHECK

### 2001 Models

1. Install scan tool to Data Link Connector (DLC). DLC is located under instrument panel, near steering column. If scan tool powers up, go to next step. If scan tool does not power up, see appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.
2. Turn ignition switch to ON position. Attempt to establish communication with Powertrain Control Module (PCM). If communication is established, go to next step. If communication cannot be established, see appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.
3. Select PCM display DTCs on scan tool. If scan tool displays any DTCs, go to next step. If scan tool does not display any DTCs, go to **TOO HOT IN VEHICLE** or **TOO COLD IN VEHICLE** .
4. If scan tool displays any DTCs starting with "U", go to appropriate SELF-DIAGNOSTIC article in ENGINE PERFORMANCE. If scan tool does not display any DTCs starting with "U", go to next step.

5. If scan tool displays any DTCs starting with "P", go to appropriate SELF-DIAGNOSTIC article in ENGINE PERFORMANCE. If scan tool does not display any DTCs starting with "P", go to **TOO HOT IN VEHICLE** or **TOO COLD IN VEHICLE**.

## TOO HOT IN VEHICLE

### 2001 Models

1. Perform **DIAGNOSTIC SYSTEM CHECK**. After check is complete, go to next step.
2. Turn ignition switch to ON position. Set mode selector knob to any position except OFF. Set blower switch in each speed position. If blower operates any of its speed positions, go to next step. If blower does not operate at all, go to appropriate symptom under **BLOWER MOTOR**.
3. If blower operates at all speed positions, go to next step. If blower does not operate at one or more speed positions, go to appropriate symptom under **BLOWER MOTOR**.
4. Alternately place recirculation door between VENT and MAX A/C positions. If recirculation door moves properly between positions, go to next step. If recirculation door does not move properly between positions, check for binding, faulty linkage or bad electrical connections. Repair or replace as necessary.
5. If TOO HOT IN VEHICLE condition occurs when A/C cooling is desired, go to next step. If TOO HOT IN VEHICLE condition occurs when A/C cooling is not desired, go to step 8.

**NOTE:** For A/C compressor operation, ambient air temperature must be greater than 38°F (3°C).

6. Start engine. Place blower switch in highest speed position. Set mode selector knob in MAX A/C position. Set temperature control knob to coldest position. If compressor clutch engages, go to next step. If compressor clutch does not engage, see A/C COMPRESSOR CLUTCH CONTROLS - ALL MODELS article.
7. Perform **A/C SYSTEM PERFORMANCE** under TESTING. If A/C system performance is as specified, go to next step. If A/C system does not perform as specified, repair as necessary. See MANUAL A/C-HEATER SYSTEMS - TROUBLE SHOOTING article. After repair, check system for normal operation.
8. Observe air temperature valve actuator drive shaft while moving temperature control knob from coldest to warmest position. If drive shaft rotates, go to next step. If drive shaft does not rotate, go to step 10.
9. Check air temperature door and air temperature valve actuator for actuator misalignment, binding linkage, obstruction, and missing or damaged seals. Repair or replace as necessary. If no problem is found, repair faulty connections at air temperature valve door actuator harness connector. After repair, check system for normal operation.

10. Check Brown wire between HVAC fuse No. 21 (10-amp), located in instrument panel fuse block, and air temperature valve actuator harness connector terminal No. 10 for open or high resistance. Repair Brown wire as necessary. After repair, check system for normal operation. If wire is okay, go to next step.
11. Check Black wire between ground and air temperature valve actuator harness connector terminal No. 7 for open or high resistance. Repair Black wire as necessary. After repair, check system for normal operation. If wire is okay, go to next step.
12. Check Light Blue wire between A/C-heater control panel harness connector C3 terminal "B" and air temperature valve actuator harness connector terminal No. 8 for open, high resistance, short to ground or short to voltage. Repair Light Blue wire as necessary. After repair, check system for normal operation. If wire is okay, go to next step.
13. Ensure A/C-heater control panel harness connector is firmly connected. Turn ignition switch to ON position. Using DVOM connected to ground, measure voltage at air temperature valve actuator harness connector terminal No. 8 (Light Blue wire). Move temperature control knob from cold (Blue) to hot (Red) positions. DVOM should indicate battery voltage in cold position and zero volts in hot position. If voltage readings are as specified, go to next step. If voltage readings are not as specified, go to step 16.
14. Check for poor connections or connector damage at air temperature valve actuator. Repair or replace as necessary. After repair, check system for normal operation. If connections are okay, go to next step.
15. Check air temperature valve actuator for damage, binding and/or faulty linkage. Repair or replace as necessary. After repair, check system for normal operation. If not problem is found, go to step 17.
16. Check for poor connections or connector damage at A/C-heater control panel. Repair or replace as necessary. After repair, check system for normal operation. If connections are okay, go to step 18.
17. Replace air temperature valve actuator. After repair, check system for normal operation. See **AIR TEMPERATURE VALVE ACTUATOR** under REMOVAL & INSTALLATION. After repair, check system for normal operation.
18. Replace A/C-heater control panel. See **A/C-HEATER CONTROL PANEL** under REMOVAL & INSTALLATION. After repair, check system for normal operation.

## TOO COLD IN VEHICLE

### 2001 Models

1. Perform **DIAGNOSTIC SYSTEM CHECK**. After check is complete, go to next step.
2. Turn ignition switch to ON position. Set mode selector knob to any position except OFF. Set blower switch in each speed position. If blower operates any of its speed positions, go to next step. If blower does not operate at all, go to appropriate symptom

under **BLOWER MOTOR** .

3. If blower operates at all speed positions, go to next step. If blower does not operate at one or more speed positions, go to appropriate symptom under **BLOWER MOTOR** .
4. Alternately place recirculation door between VENT and MAX A/C positions. If recirculation door moves properly between positions, go to next step. If recirculation door does not move properly between positions, check for binding, faulty linkage or bad electrical connections. Repair or replace as necessary.
5. Check engine cooling system for any of the following conditions: low coolant level, loose or worn accessory drive belt, leaking radiator or heater hoses, kinked radiator or heater hoses, or faulty or leaking radiator cap. Repair any condition found. After repair, check system for normal operation. If no problem is found, go to next step.
6. Start engine. Place blower switch in highest speed position. Set mode selector knob in OFF, VENT or FLOOR positions. Set temperature control knob to coldest position. If compressor clutch does not engage, go to next step. If compressor clutch engages, see A/C COMPRESSOR CLUTCH CONTROLS - ALL MODELS article.
7. Observe air temperature valve actuator drive shaft while moving temperature control knob from coldest to warmest position. If drive shaft rotates, go to next step. If drive shaft does not rotate, go to step 9 .
8. Check air temperature door and air temperature valve actuator for actuator misalignment, binding linkage, obstruction, and missing or damaged seals. Repair or replace as necessary. If no problem is found, repair faulty connections at air temperature valve door actuator harness connector. After repair, check system for normal operation.
9. Check Brown wire between HVAC fuse No. 21 (10-amp) located in instrument panel fuse block and air temperature valve actuator harness connector terminal No. 10 for open or high resistance. Repair Brown wire as necessary. After repair, check system for normal operation. If wire is okay, go to next step.
10. Check Black wire between ground and air temperature valve actuator harness connector terminal No. 7 for open or high resistance. Repair Black wire as necessary. After repair, check system for normal operation. If wire is okay, go to next step.
11. Check Light Blue wire between A/C-heater control panel harness connector C3 terminal "B" and air temperature valve actuator harness connector terminal No. 8 for open, high resistance, short to ground or short to voltage. Repair Light Blue wire as necessary. After repair, check system for normal operation. If wire is okay, go to next step.
12. Ensure A/C-heater control panel harness connector is firmly connected. Turn ignition switch to ON position. Using DVOM connected to ground, measure voltage at air temperature valve actuator harness connector terminal No. 8 (Light Blue wire). Move temperature control knob from cold (Blue) to hot (Red) positions. DVOM should indicate battery voltage in cold position and zero volts in hot position. If voltage readings are as specified, go to next step. If voltage readings are not as specified, go to step 15 .

13. Check for poor connections or connector damage at air temperature valve actuator. Repair or replace as necessary. After repair, check system for normal operation. If connections are okay, go to next step.
14. Check air temperature valve actuator for damage, binding and/or faulty linkage. Repair or replace as necessary. After repair, check system for normal operation. If not problem is found, go to step 16 .
15. Check for poor connections or connector damage at A/C-heater control panel. Repair or replace as necessary. After repair, check system for normal operation. If connections are okay, go to step 17 .
16. Replace air temperature valve actuator. After repair, check system for normal operation. See **AIR TEMPERATURE VALVE ACTUATOR** under REMOVAL & INSTALLATION. After repair, check system for normal operation.
17. Replace A/C-heater control panel. See **A/C-HEATER CONTROL PANEL** under REMOVAL & INSTALLATION. After repair, check system for normal operation.

## SYSTEM TESTS

### A/C SYSTEM PERFORMANCE

1. Park vehicle out of direct sunlight. Open windows or door to ventilate interior. Vent engine exhaust, if necessary. Install manifold gauge set. Note ambient temperature and humidity.
2. Close all windows and doors. Place mode selector lever in MAX A/C position, blower switch in high speed position, and temperature control knob in full cold position.
3. Insert thermometer into right center vent. Place transmission in Park or Neutral. Start engine and allow it to run at 1500 RPM until thermometer reaches lowest temperature (approximately 3 minutes). See **A/C SYSTEM SPECIFICATIONS** table.

### A/C SYSTEM SPECIFICATIONS

Ambient Temp. °F (°C) <sup>(1)</sup>	Low-Side Pressure psi (kg/cm <sup>2</sup> )	High-Side Pressure psi (kg/cm <sup>2</sup> )	Air Outlet Temp. °F (°C)
80 (27)	27-33 (1.9-.2.3)	160-228 (11-15)	50-51 (10-11)
90 (32)	35-41 (2.5-2.9)	200-280 (14-19)	56-59 (13-15)
100 (37)	41-49 (2.9-3.4)	245-285 (17-20)	64-66 (18-19)
110 (43)	44-52 (3.0-3.7)	260-300 (18-21)	67-75 (19-23)

(1) Specifications are with relative humidity at 40 percent and engine speed at 1500 RPM.

## REMOVAL & INSTALLATION

**WARNING: To avoid injury from accidental air bag deployment, read**

**and carefully follow all SERVICE PRECAUTIONS and  
DISABLING & ACTIVATING AIR BAG SYSTEM procedures  
in AIR BAG SYSTEM SAFETY article in GENERAL  
SERVICING.**

**NOTE:** For removal and installation procedures not covered in this article, see HEATER SYSTEMS - RWD TRUCKS & VANS - EXCEPT TRACKER article.

## ACCUMULATOR

### Removal & Installation

1. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Disconnect negative battery cable. Disconnect electrical connections (if necessary).
2. Disconnect accumulator lines and plug openings. On 4.3L engine, remove A/C pressure switch. On all models, remove clamp bolt and remove accumulator from clamp.
3. To install, reverse removal procedure. Add 3 ounces of clean refrigerant oil to new accumulator before installation. Lubricate new "O" rings with clean refrigerant oil before installation. Evacuate, charge, and leak test A/C system.

## ACTUATOR RECALIBRATION

Use the following steps to perform the calibration update:

1. Turn OFF the ignition.
2. Remove the battery positive voltage circuit fuse of the HVAC Control Module.

**IMPORTANT: The module memory will not clear if the battery positive voltage circuit fuse is installed in less than 60 seconds.**

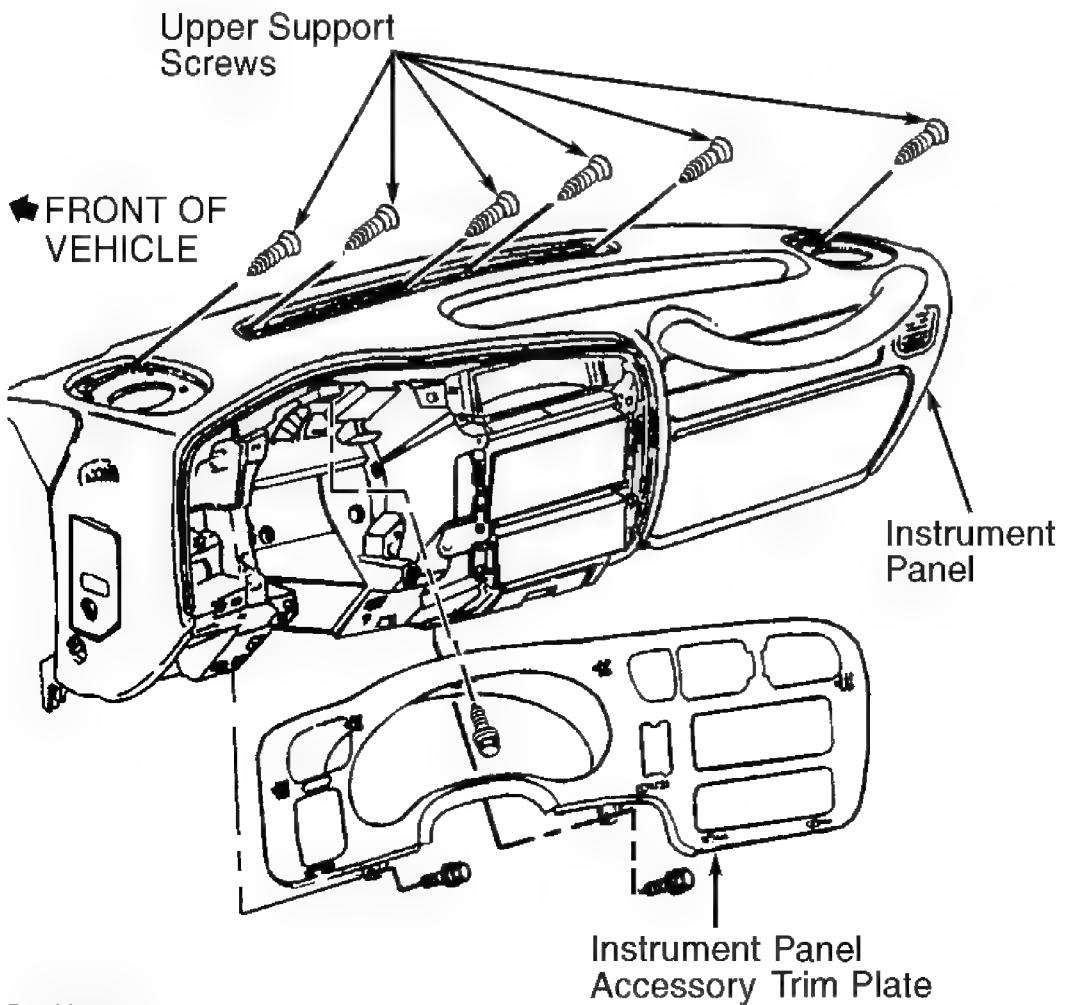
3. Wait 60 seconds.
4. Install the fuse.

## A/C-HEATER CONTROL PANEL

### Removal & Installation

1. Disconnect negative battery cable. Remove left underdash hush panel. Remove 4 screws attaching knee bolster below steering column. Set parking brake. Disconnect emergency brake release cable from ratchet mechanism. Move tilt steering column down (if equipped).
2. Turn ignition key to ON position and move automatic transmission gear selector to low (if equipped). Remove instrument panel accessory trim plate. See **Fig. 2**. Remove A/C-

heater control panel screws. Disconnect vacuum and electrical connectors at A/C-heater control panel. Remove A/C-heater control panel. To install, reverse removal procedure.



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**Fig. 2: Exploded View Of Instrument Panel & Accessory Trim Plate**  
Courtesy of GENERAL MOTORS CORP.

#### AIR TEMPERATURE VALVE ACTUATOR

##### Removal & Installation

Remove instrument panel. See **INSTRUMENT PANEL**. Remove air temperature valve actuator connector and retaining screws. Remove actuator from HVAC assembly. To install, reverse removal procedure.

#### BLOWER MOTOR & FAN

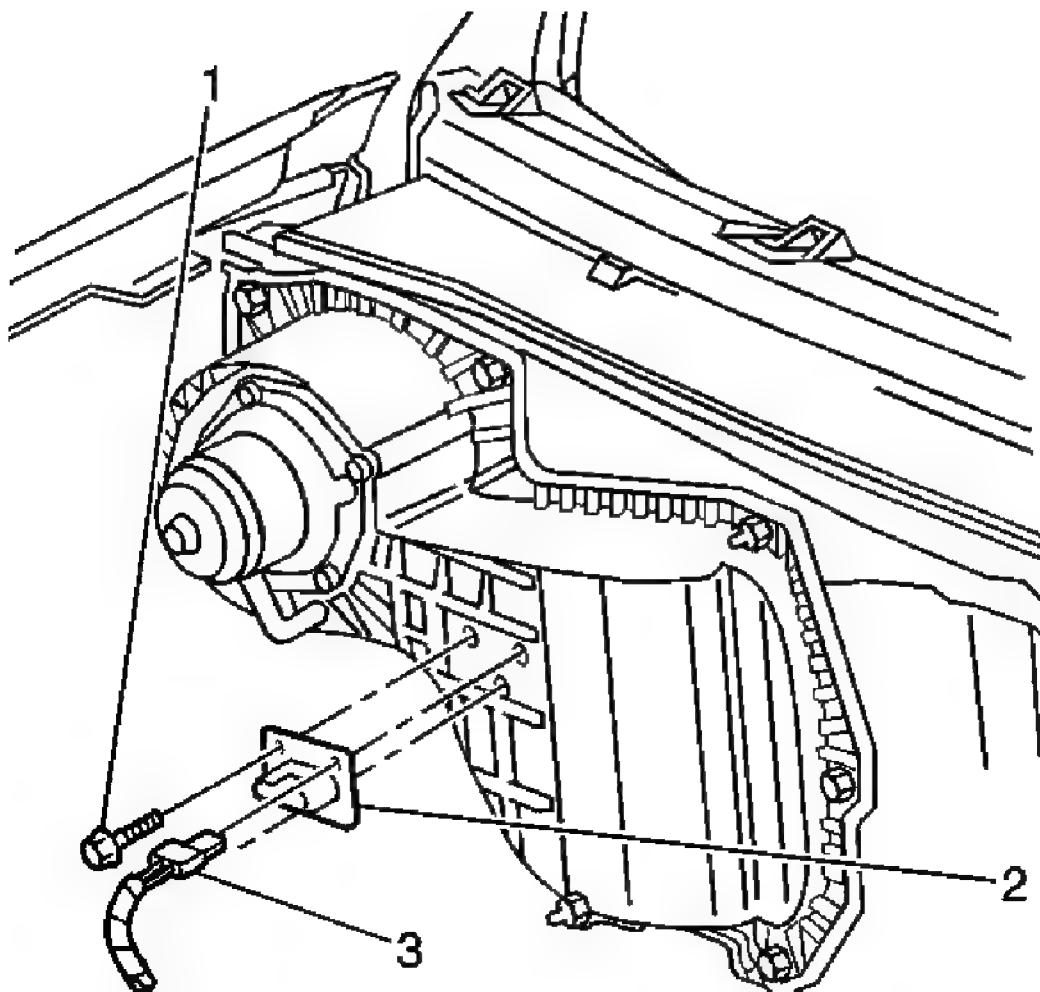
##### Removal & Installation

1. Disconnect negative battery cable. Disconnect blower motor electrical connections. Remove Vehicle Control Module (VCM). Remove coolant recovery reservoir and blower motor cooling tube. Remove blower motor mounting screws.
2. Cut access cover along dotted lines. See **Fig. 5**. Remove upper half of access cover, tearing remaining portion of access cover. Remove blower motor. Remove nut attaching blower fan to blower motor shaft. Remove fan.
3. To install, reverse removal procedure. After reinstalling cut-out portion of access cover, apply a bead of Black weatherstrip adhesive to cut and tear lines of access cover.

## **BLOWER MOTOR RESISTOR**

### **Removal Procedure (C42)**

1. Disconnect the electrical connector (3).
2. Remove the blower motor resistor mounting screws (1).
3. Remove the blower motor resistor (2) from the blower case.



**Fig. 3: Identifying Blower Motor Resistor Assembly (C42)**  
Courtesy of GENERAL MOTORS CORP.

**Installation Procedure (C42)**

1. Install the blower motor resistor (2) to the blower case.

**NOTE:** Use the correct fastener in the correct location. Replacement fasteners must be the correct part number for that application. Fasteners requiring replacement or fasteners requiring the use of thread locking compound or sealant are identified in the service procedure. Do not use paints, lubricants, or corrosion inhibitors on fasteners or fastener joint surfaces unless specified. These coatings affect fastener torque and joint clamping force and may damage the fastener. Use the correct tightening sequence and

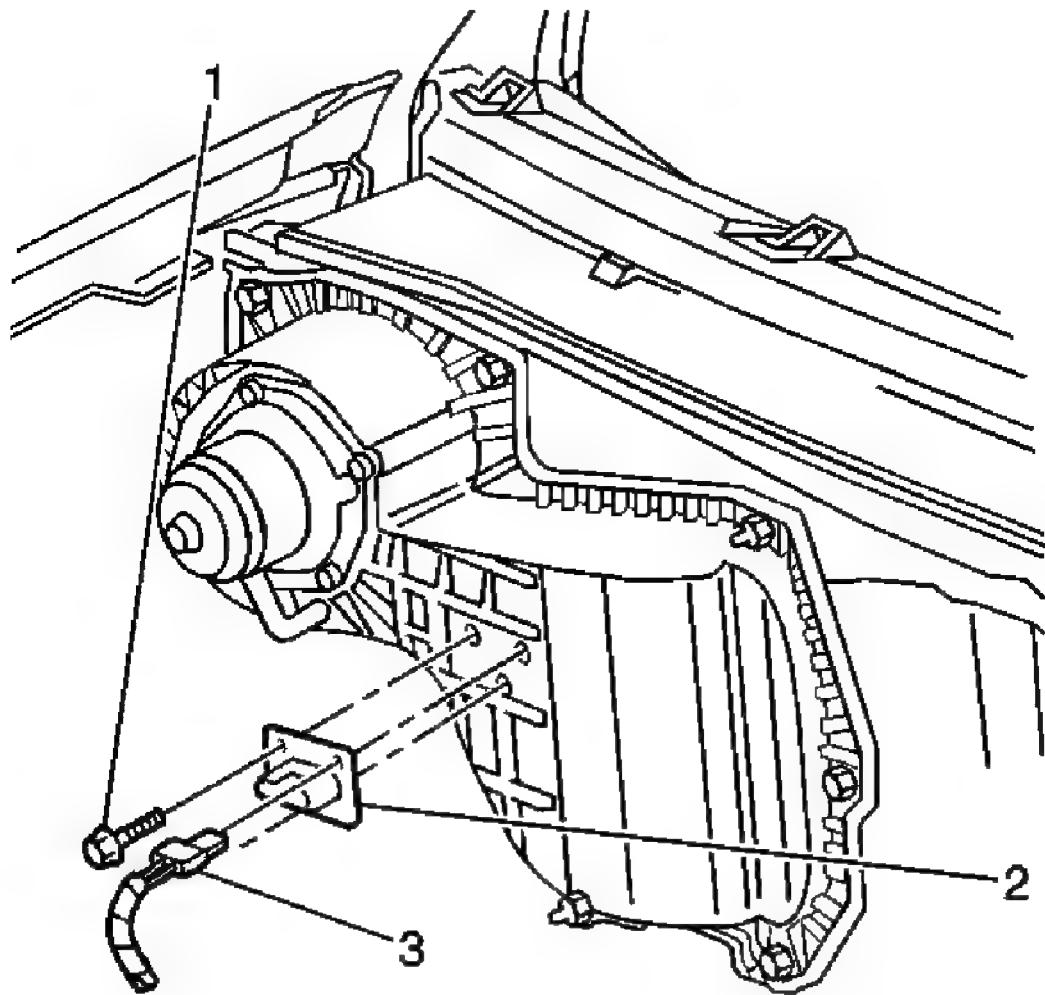
**specifications when installing fasteners in order to avoid damage to parts and systems.**

2. Install the blower motor resistor mounting screws (1).

**Tighten**

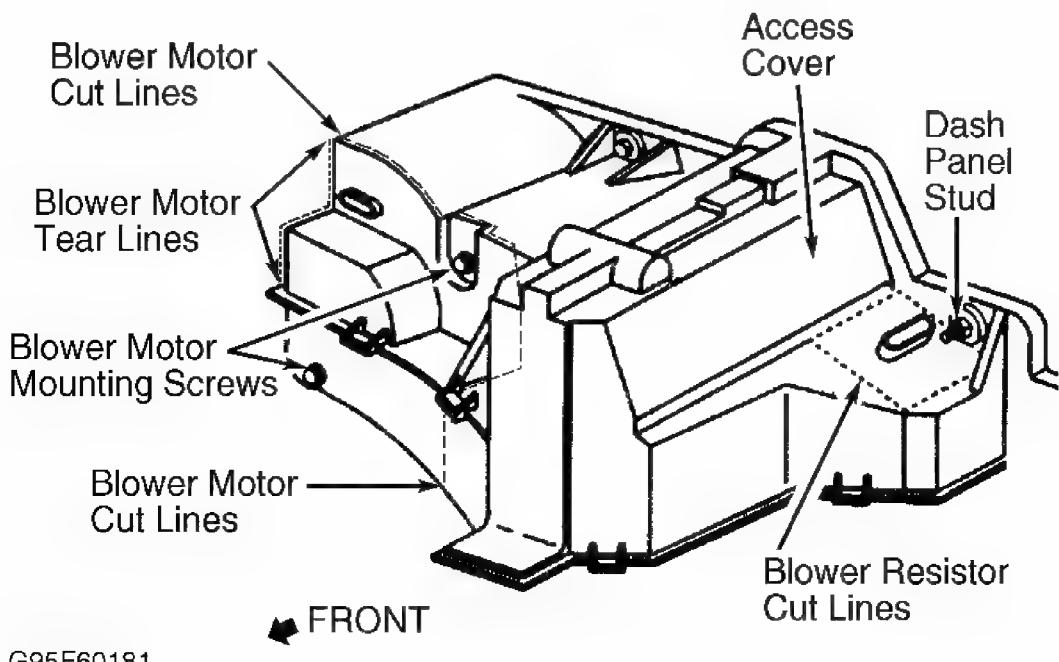
Tighten the screws to 1.9 N.m (17 lb in).

3. Connect the electrical connector (3).



**Fig. 4: Identifying Blower Motor Resistor Assembly (C42)**  
Courtesy of GENERAL MOTORS CORP.

1. Remove the A/C control relay bracket with the relay.
2. Remove the blower resistor harness.
3. Remove the stud from the IP, if necessary.
4. Remove the blower motor resistor mounting screw.
5. Cut the access cover from the case. Cut all four sides of the cover in order to remove the three attaching screws. Use a sharp utility knife in order to cut the case. Make the cuts straight and clean. The access cover must be reinstalled and is visible to the customer.



**Fig. 5: Exploded View Of Blower Motor & Evaporator Assembly**  
Courtesy of GENERAL MOTORS CORP.

6. Remove the blower motor resistor assembly.

#### Installation Procedure (C60)

1. Install the blower motor resistor assembly.

**NOTE:** Use the correct fastener in the correct location. Replacement fasteners must be the correct part number for that application. Fasteners requiring replacement or fasteners requiring the use of thread locking compound or sealant are identified in the service procedure. Do not use paints,

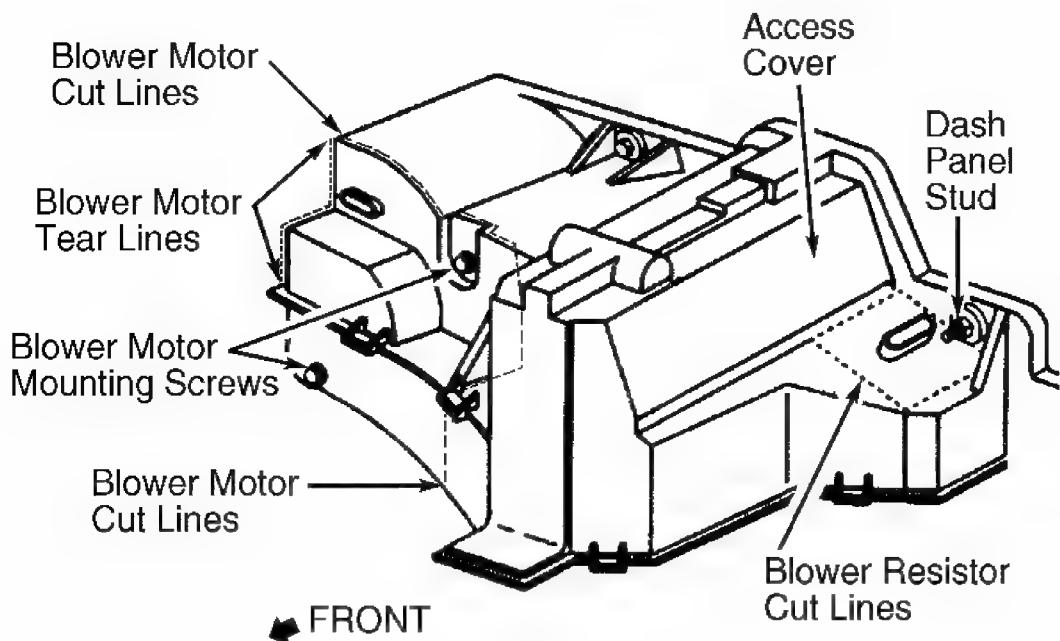
**lubricants, or corrosion inhibitors on fasteners or fastener joint surfaces unless specified. These coatings affect fastener torque and joint clamping force and may damage the fastener. Use the correct tightening sequence and specifications when installing fasteners in order to avoid damage to parts and systems.**

2. Install the blower motor resistor mounting screw.

### **Tighten**

Tighten the screw to 1.9 N.m (17 lb in).

3. Utility only- Apply a bead of black weather-strip adhesive over the cut-line areas.



**Fig. 6: Exploded View Of Blower Motor & Evaporator Assembly**  
Courtesy of GENERAL MOTORS CORP.

4. Utility only- Allow the adhesive to set for 15 minutes, or until the adhesive skins over.
5. Install the stud to the dash panel, if necessary.
6. Install the resistor harness.
7. Install the A/C relay bracket into the body.

**Removal & Installation**

1. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Disconnect negative battery cable. Remove electrical connections as necessary.
2. Remove drive belt. Remove refrigerant hoses from compressor and cap openings. On 2.2L engine, remove compressor rear bracket. On all models, remove compressor from bracket.
3. To install, reverse removal procedure. Drain and measure oil from old compressor. If less than one ounce is drained, add 2 ounces of refrigerant oil to NEW compressor. If more than one ounce is drained, add the same amount to NEW compressor. Evacuate, charge, and leak test A/C system.

**CONDENSER****Removal & Installation**

1. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Disconnect negative battery cable. Remove upper fan shroud. Drain engine coolant. Remove radiator. Disconnect inlet/outlet lines at condenser and cap openings. Remove condenser from vehicle.
2. To install, reverse removal procedure. Lubricate new "O" rings with clean refrigerant oil before installation. Add one ounce of clean refrigerant oil to condenser. Fill cooling system and check for leaks. Evacuate, charge, and leak test A/C system.

**DRAINING AND FILLING COOLING SYSTEM****Engine Coolant Recycling**

The use of a waterless, GM approved coolant recycling system on the vehicle eliminates the need for evacuation. This system is available through the GM Dealer Equipment program (or the equivalent). This method removes the used coolant and replaces the used coolant with approved new or with recycled coolant. When this equipment is not available use the following procedure.

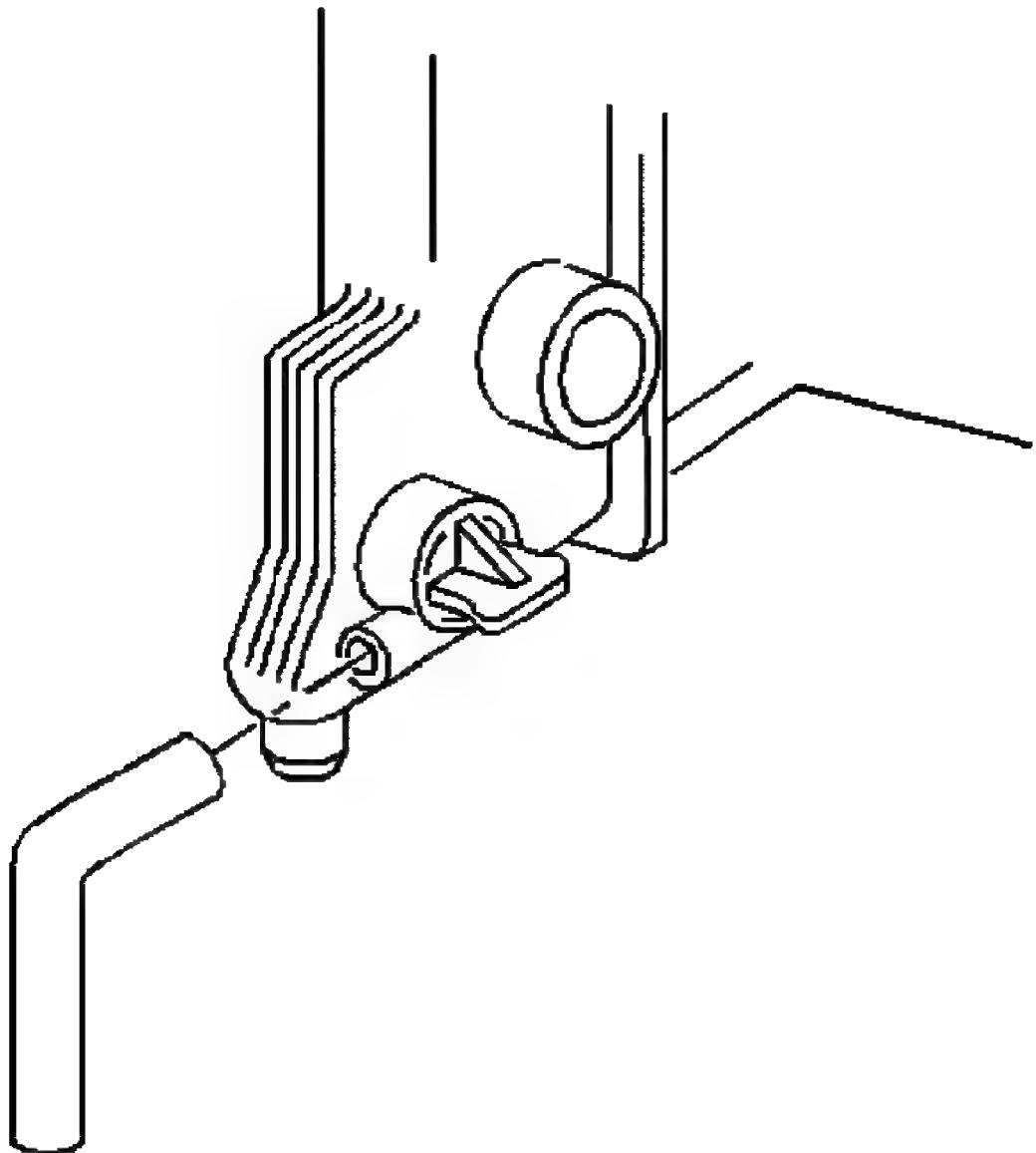
**Draining Procedure**

**CAUTION: To avoid being burned, do not remove the radiator cap or surge tank cap while the engine is hot. The cooling system will release scalding fluid and steam under pressure if radiator cap or surge tank cap is removed while the engine and radiator are still hot.**

**CAUTION: As long as there is pressure in the cooling system, the temperature can be considerably higher than the boiling temperature of the solution in the radiator without causing**

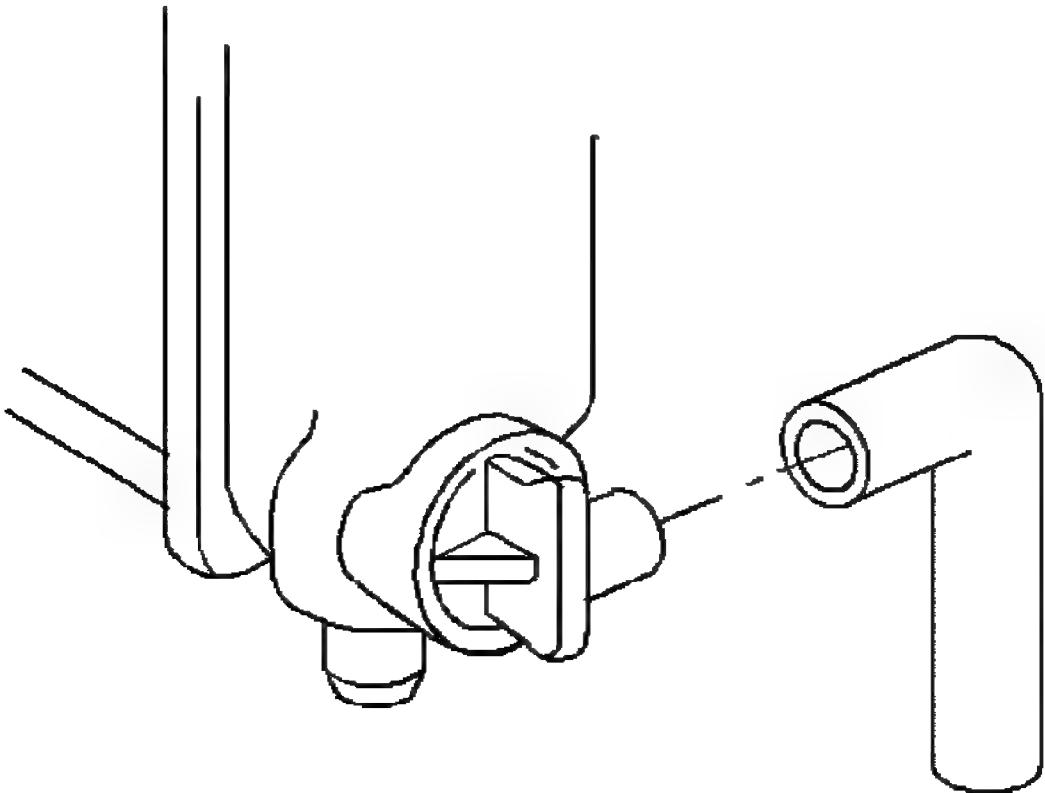
**the solution to boil. Removal of the pressure cap while the engine is hot and pressure is high will cause the solution to boil instantaneously -- possibly with explosive force -- spewing the solution over the engine, fenders and the person removing the cap.**

1. Ensure that the system has cooled, then remove the radiator filler cap.
2. Place a drain pan under the radiator drain cock.
3. Install a tube on the drain cock, if necessary.



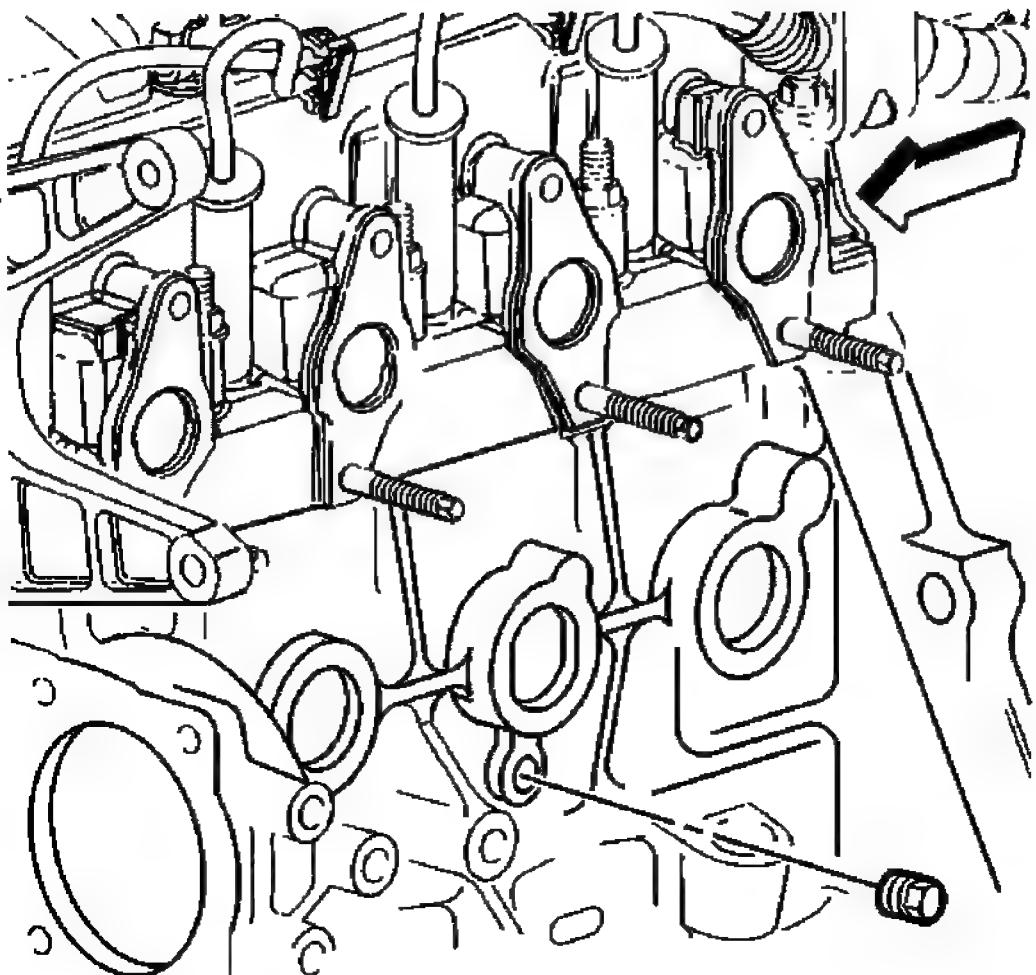
**Fig. 7: Placing Tube On Drain Cock**  
Courtesy of GENERAL MOTORS CORP.

4. Place the end of the tube in the drain pan.
5. Open the drain cock completely.



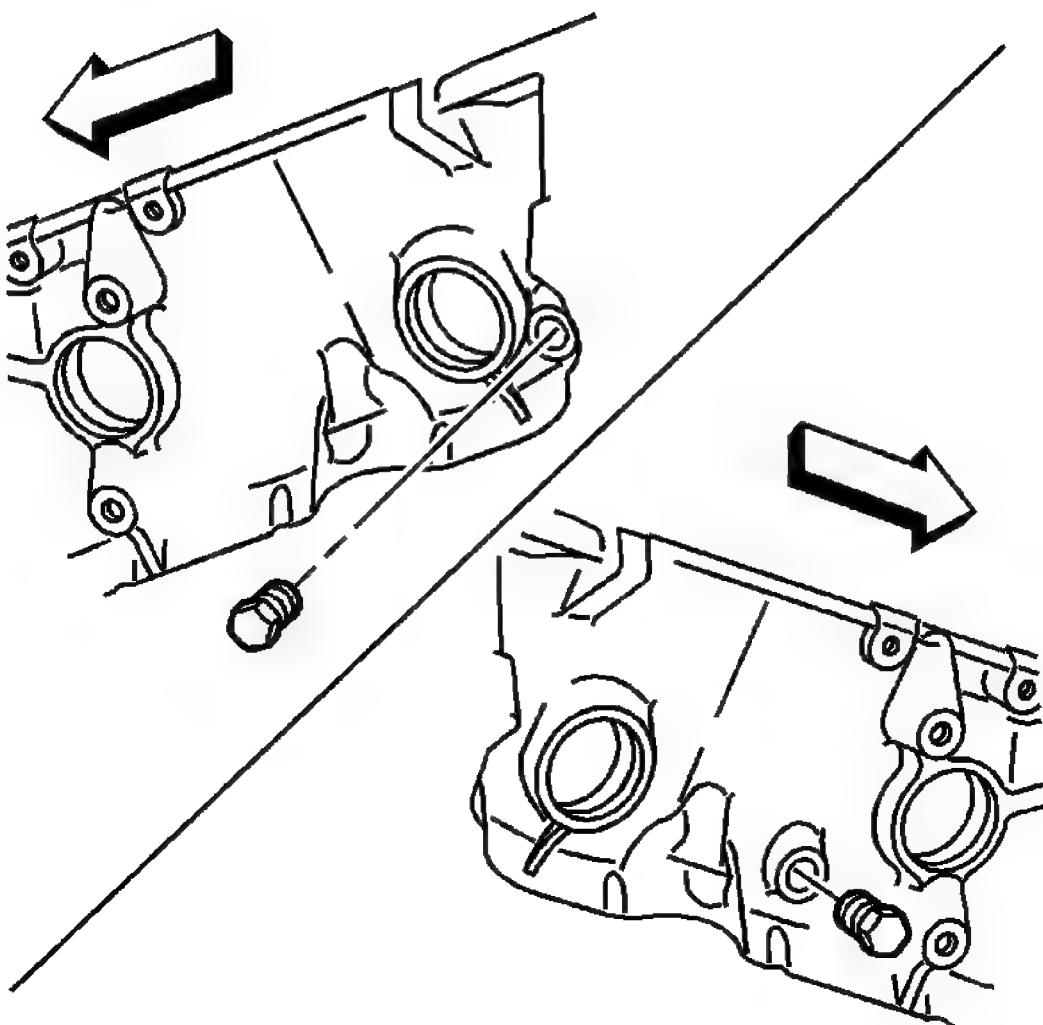
**Fig. 8: Inspecting Drain Cock**  
Courtesy of GENERAL MOTORS CORP.

6. Allow the cooling system to drain until the flow stops. If only the radiator is drained, up to 40 percent of the old coolant will remain in the system.
7. Place a drain pan under the engine.
8. Remove the drain plug from the side of the engine block, 2.2 L shown.



**Fig. 9: Removing Engine Block Drain Plug (2.2L)**  
Courtesy of GENERAL MOTORS CORP.

9. Remove the drain plugs from each side of the engine block, 4.3 L shown.
  - There may be more drainage from the radiator at this time.
  - Allow the engine block to drain until the flow stops.



**Fig. 10: Removing Engine Block Drain Plugs (4.3L)**  
Courtesy of GENERAL MOTORS CORP.

**NOTE:** Use the correct fastener in the correct location. Replacement fasteners must be the correct part number for that application. Fasteners requiring replacement or fasteners requiring the use of thread locking compound or sealant are identified in the service procedure. Do not use paints, lubricants, or corrosion inhibitors on fasteners or fastener joint surfaces unless specified. These coatings affect fastener torque and joint clamping force and may damage the fastener. Use the correct tightening sequence and specifications when installing fasteners in order to avoid damage to parts and systems.

**IMPORTANT: Dispose of the used engine coolant properly. Store the used coolant in a used coolant Holding Tank awaiting proper disposal or recycling. Do not pour used coolant down the drain. Dex-Cool(R) antifreeze is a very toxic chemical. Disposal into the sewer system or into the ground water is both environmentally irresponsible and illegal.**

- **If the drained coolant is discolored, flush the cooling system. .**
- **If the drained coolant appears normal, continue with the filling procedure.**

10. Apply a sealer (GM P/N 12346004) to the threads and then tighten the engine block drain plug(s).

### **Tighten**

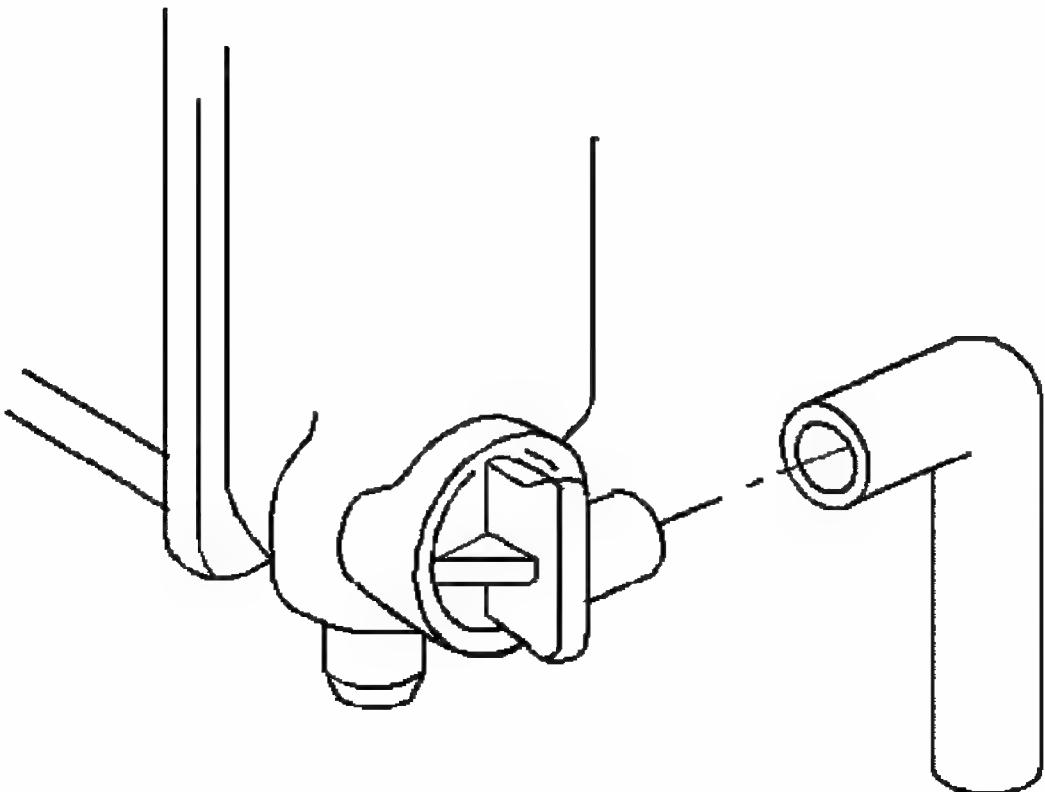
- Tighten the engine block drain plugs (2.2 L) to 15 N.m (11 lb ft).
- Tighten the engine block drain plugs (4.3 L) to 18 N.m (13 lb ft).

### **Filling Procedure**

**NOTE: Do not add cold water to the cooling system with the engine at or above operating temperature. Adding cold water causes rapid cooling, resulting in possible engine damage.**

**NOTE: Do not use a solution stronger than 70 percent antifreeze. Pure antifreeze can freeze at -22°C (-8°F).**

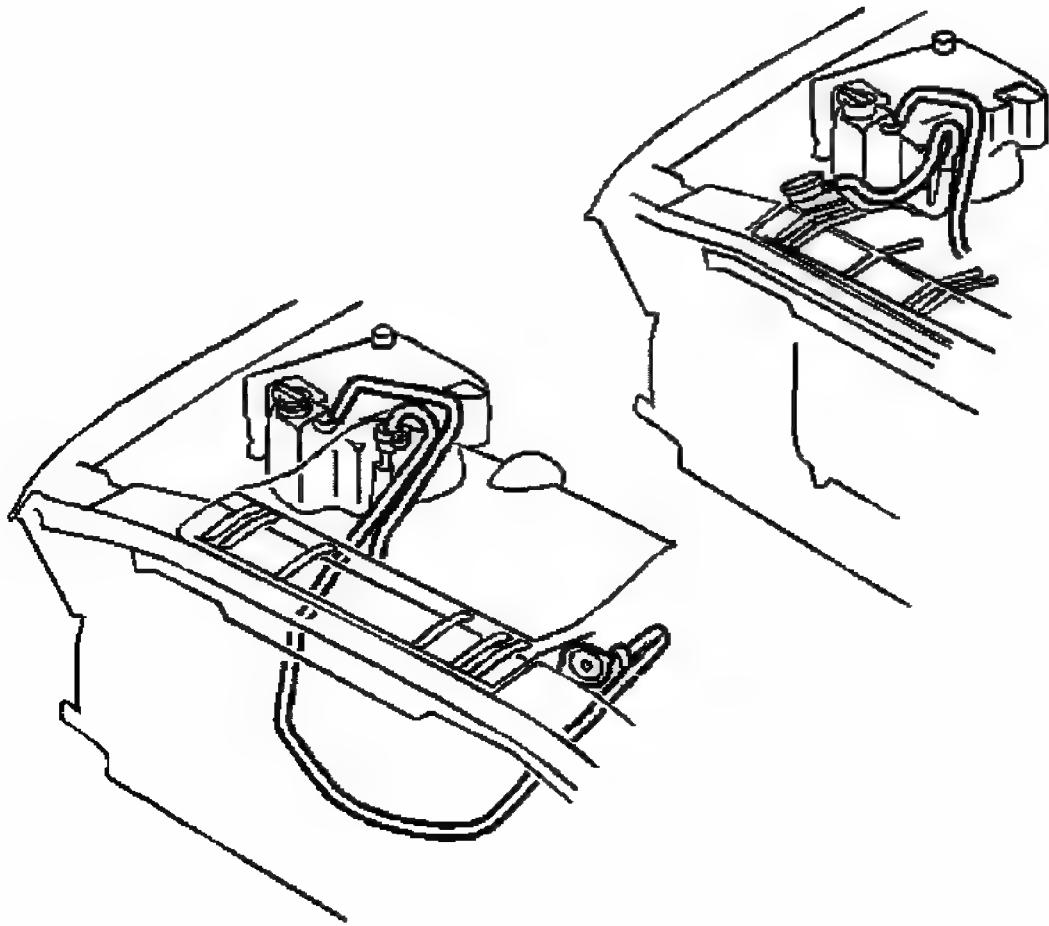
1. Ensure that the radiator drain cock is closed.



**Fig. 11: Inspecting Drain Cock**  
Courtesy of GENERAL MOTORS CORP.

2. Inspect the strength of the old coolant, before attempting to reuse.
3. When you need additional antifreeze solution:
  - A. For coolant use Dex-Cool(R) orange-colored silicate free coolant.
  - B. Pre-mix Dex-Cool(R) at a ratio of 50/50 with clean, drinkable water.
4. Place a large mouth funnel in the radiator fill opening.
5. Slowly add the coolant mixture.
6. Fill to 1/2 inch below the radiator fill opening.
7. Start the engine.
8. As the cooling system warms up and the thermostat opens, the coolant level will drop.
9. Add coolant until the level is up to the radiator fill opening.
  - Do not spill the coolant onto the exhaust system or other hot engine parts.
  - Under some conditions, Dex-Cool(R) is combustible.
10. Replace the radiator filler cap.
11. Inspect the level in the coolant recovery reservoir, add coolant if needed.

12. Inspect the cooling system for leaks.



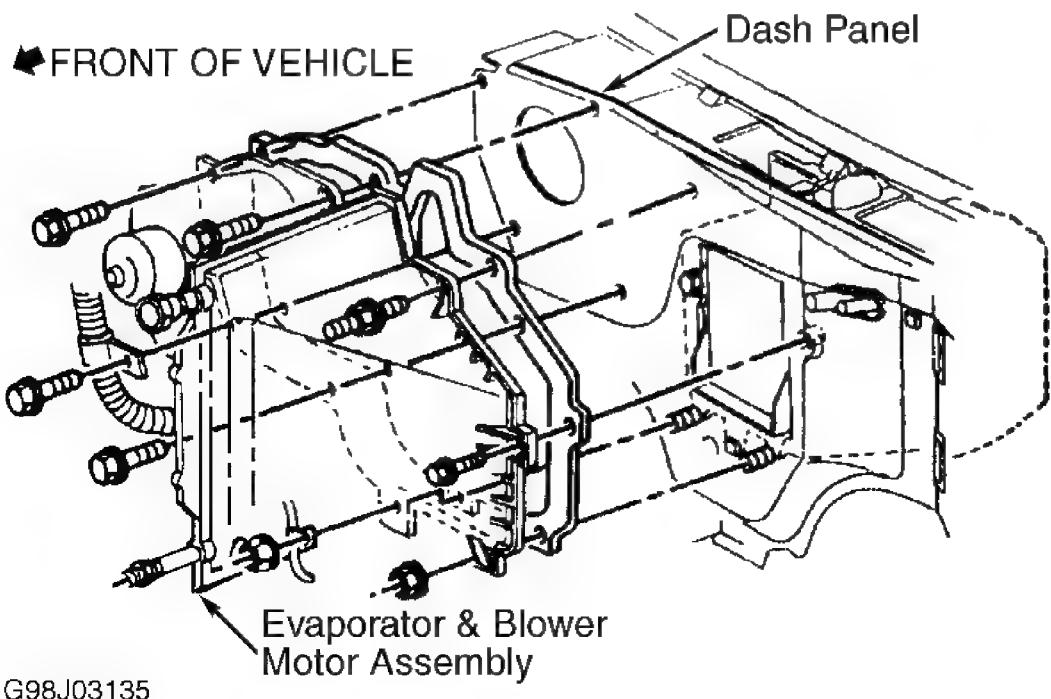
**Fig. 12: Inspecting Cooling Lines**  
Courtesy of GENERAL MOTORS CORP.

## EVAPORATOR CORE

### Removal & Installation

1. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Disconnect negative battery cable. Remove hood. Remove right front fender. Remove right front inner wheelwell panel.
2. Disconnect condenser-to-evaporator line. Remove hoses from accumulator. Remove accumulator. See **ACCUMULATOR** under REMOVAL & INSTALLATION.
3. Remove A/C control relay and bracket, and set aside. Remove blower motor resistor harness. Remove stud from dash panel, above blower motor resistor. Remove blower motor resistor. See **BLOWER MOTOR RESISTOR**.

4. Remove evaporator and blower motor assembly screws and nuts. Remove evaporator and blower motor assembly. See **Fig. 13**. Remove case screws and nuts. Separate case halves, and remove evaporator core.
5. To install, reverse removal procedure. Lubricate new "O" rings with clean refrigerant oil before installation. Add 3 ounces of clean refrigerant oil to evaporator core. Evacuate, charge, and leak test A/C system.

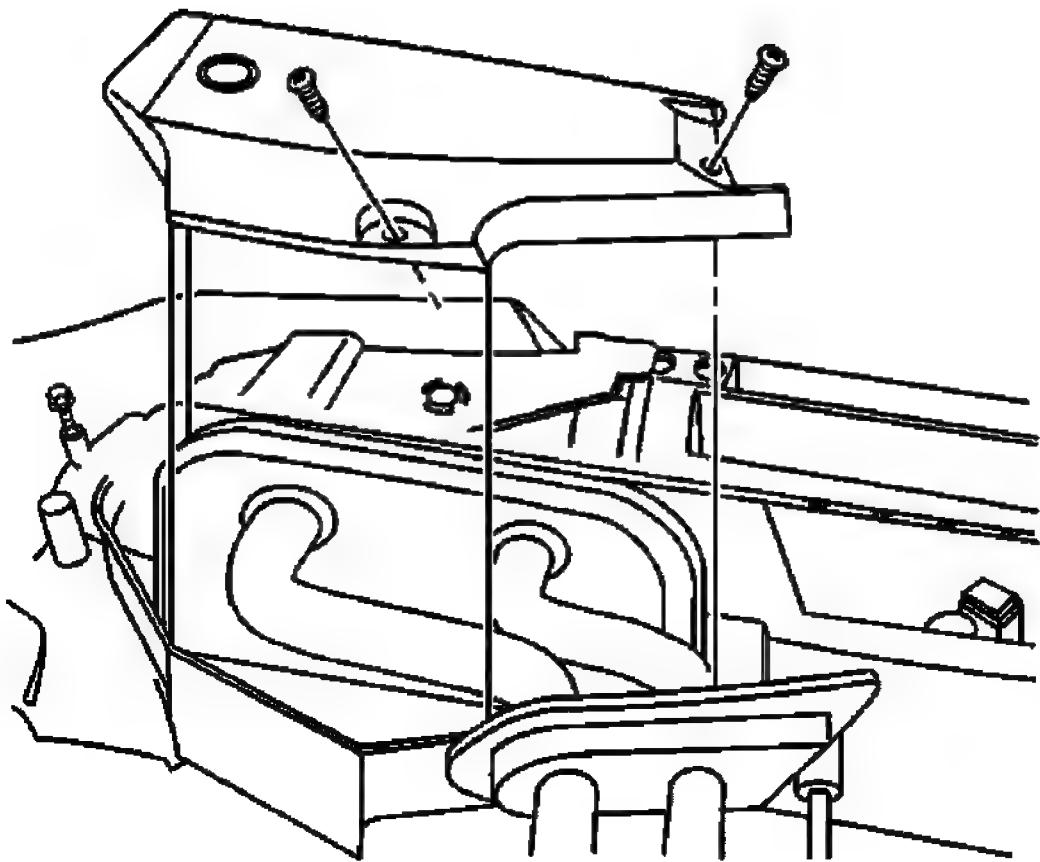


**Fig. 13: Evaporator & Blower Motor Assembly Mounting**  
Courtesy of GENERAL MOTORS CORP.

## HEATER CORE

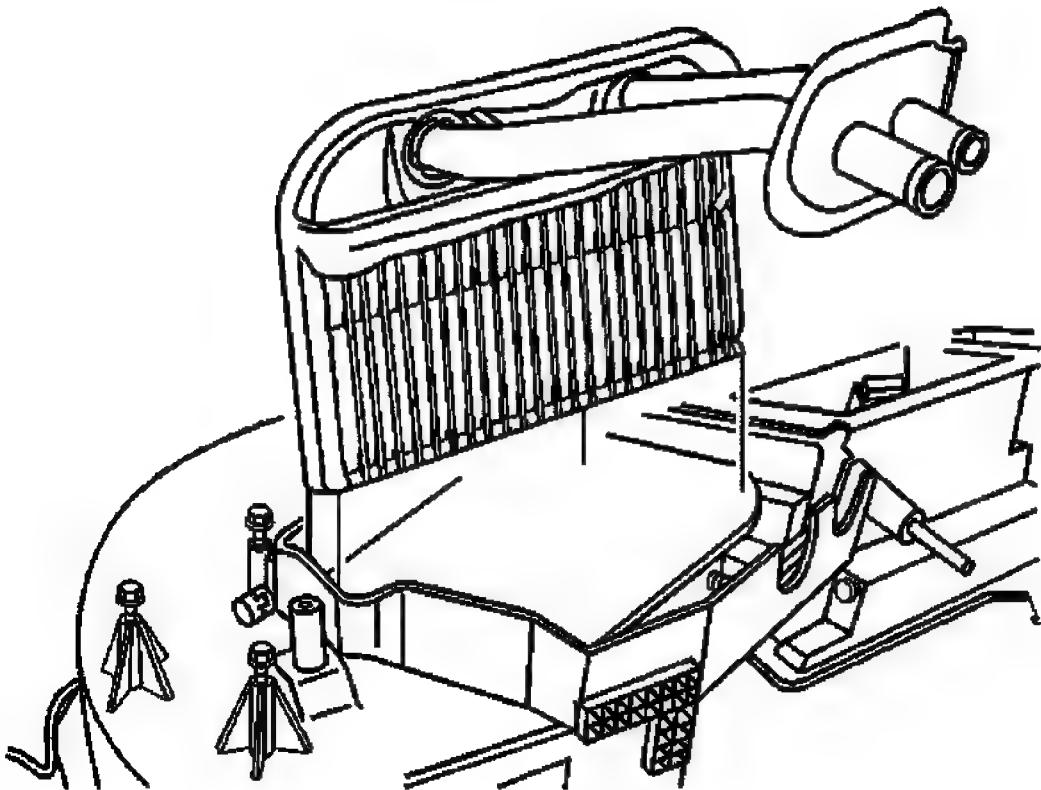
### Removal Procedure

1. Remove the heater/vent module. Refer to **HEATER/VENT MODULE**.
2. Remove the heater core access cover screws.



**Fig. 14: Identifying Heater Core Access Cover & Screws**  
Courtesy of GENERAL MOTORS CORP.

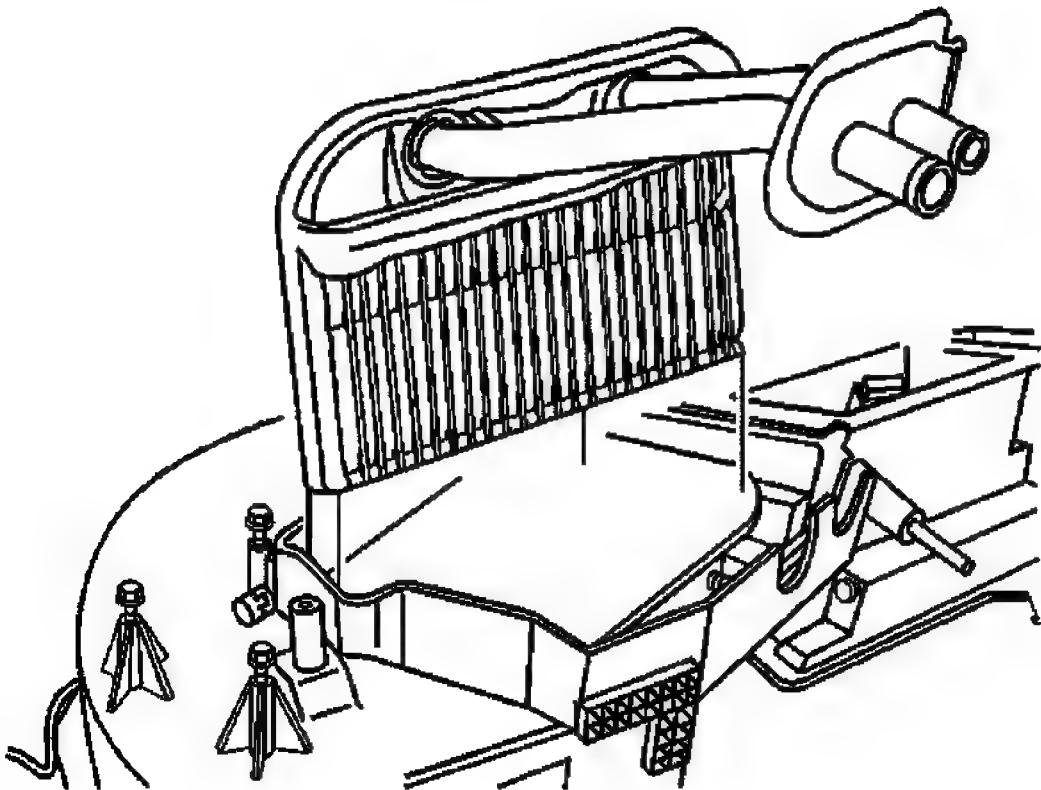
3. Remove the heater core access cover.
4. Remove the heater core from the heater/vent module.



**Fig. 15: Identifying Heater Core**  
Courtesy of GENERAL MOTORS CORP.

**Installation Procedure**

1. Install the heater core to the heater/vent module.



**Fig. 16: Identifying Heater Core**

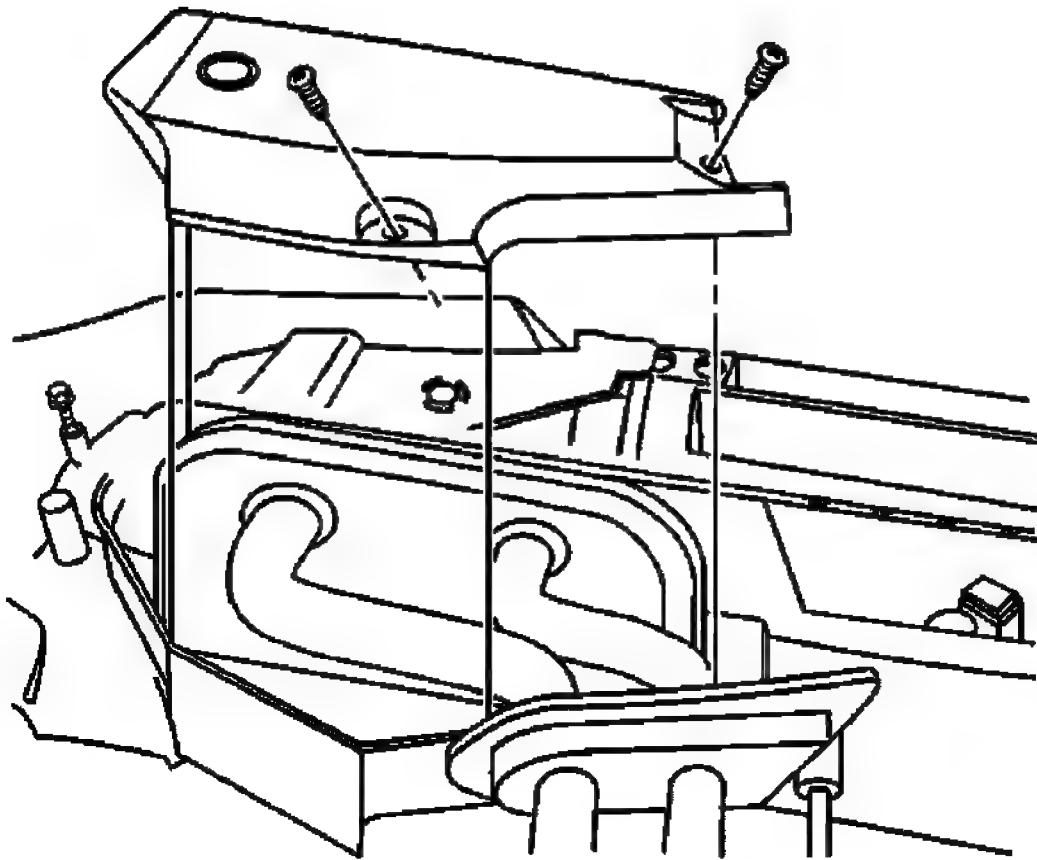
Courtesy of GENERAL MOTORS CORP.

**NOTE:** Use the correct fastener in the correct location. Replacement fasteners must be the correct part number for that application. Fasteners requiring replacement or fasteners requiring the use of thread locking compound or sealant are identified in the service procedure. Do not use paints, lubricants, or corrosion inhibitors on fasteners or fastener joint surfaces unless specified. These coatings affect fastener torque and joint clamping force and may damage the fastener. Use the correct tightening sequence and specifications when installing fasteners in order to avoid damage to parts and systems.

2. Install the heater core access cover.

**Tighten**

Tighten the heater core access cover screws to 1.9 N.m (17 lb in).



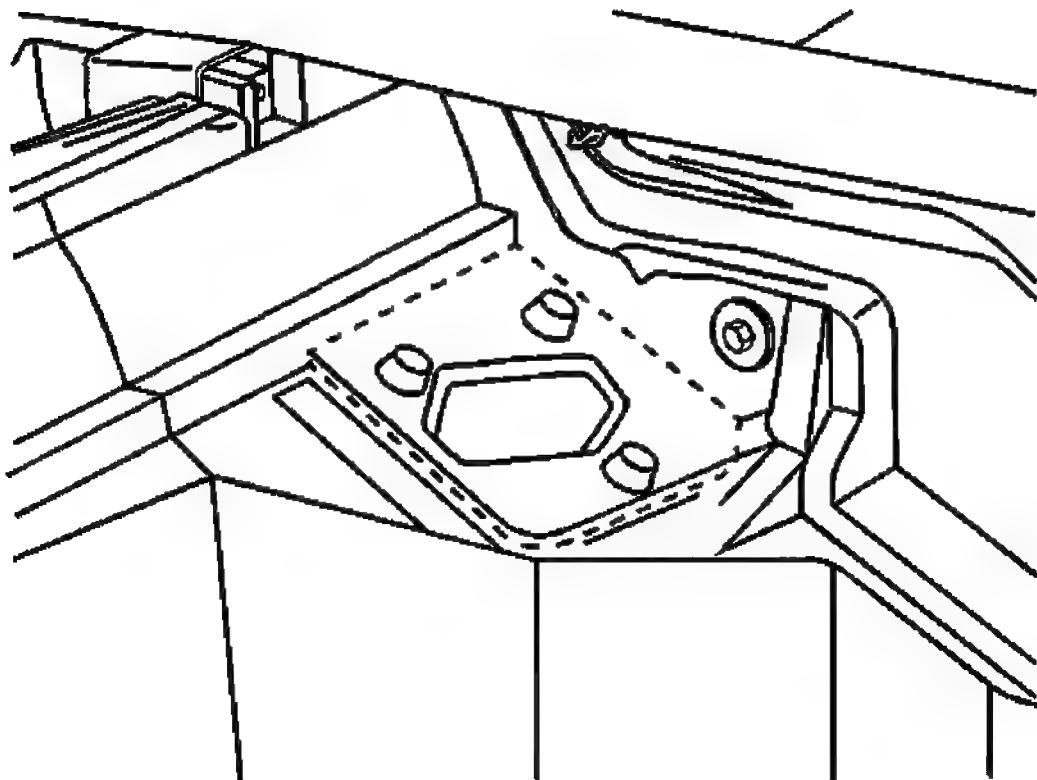
**Fig. 17: Identifying Heater Core Access Cover & Screws**  
Courtesy of GENERAL MOTORS CORP.

3. Install the heater/vent module. Refer to **HEATER/VENT MODULE** .

## **HEATER/VENT MODULE**

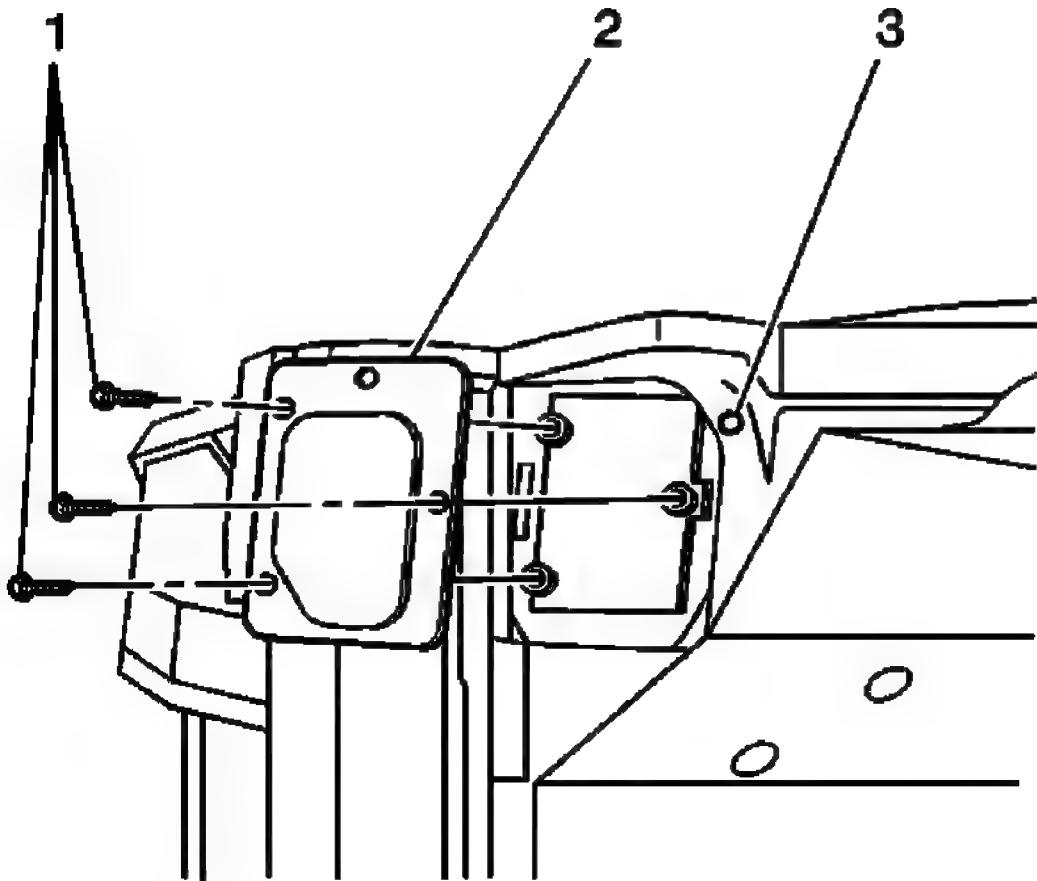
### **Removal Procedure**

1. Remove the instrument panel. Refer to **INSTRUMENT PANEL** .
2. Drain the engine coolant. Refer to **DRAINING AND FILLING COOLING SYSTEM** .
3. On vehicles with automatic climate control only, cut the outer layer of the A/C evaporator and blower module in order to access the service access cover.



**Fig. 18: Identifying Outer Layer Of A/C Evaporator & Blower Module**  
Courtesy of GENERAL MOTORS CORP.

4. On vehicles with automatic climate control only, remove the service access cover mounting screws (1).
5. On vehicles with automatic climate control only, remove the service access cover (2).

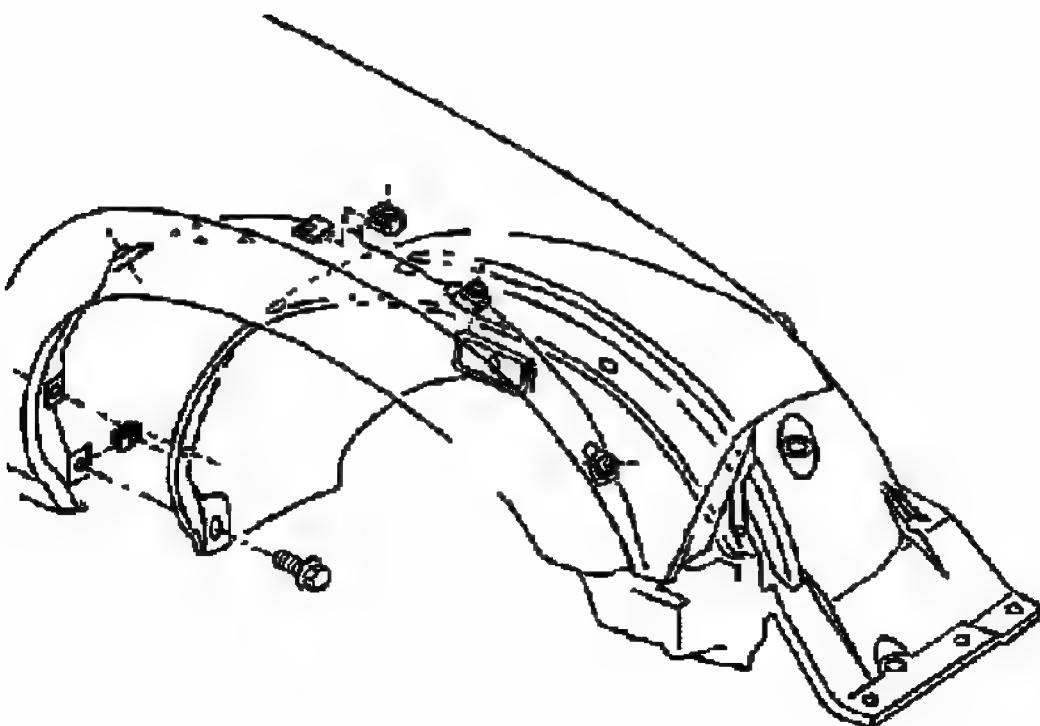


**Fig. 19: Identifying Service Access Cover & Mounting Screws**  
Courtesy of GENERAL MOTORS CORP.

6. On vehicles without automatic climate control, remove the blower motor resistor. Refer to **BLOWER MOTOR RESISTOR**.

**IMPORTANT: Mark and use the same mounting bolt for the heater/vent module during the installation process. Other mounting bolts are longer and will obstruct the operation of the temperature door.**

7. Remove the heat/vent module mounting bolt through the blower motor resistor or service access cover opening.
8. On vehicles with A/C only, remove the right wheel house panel.



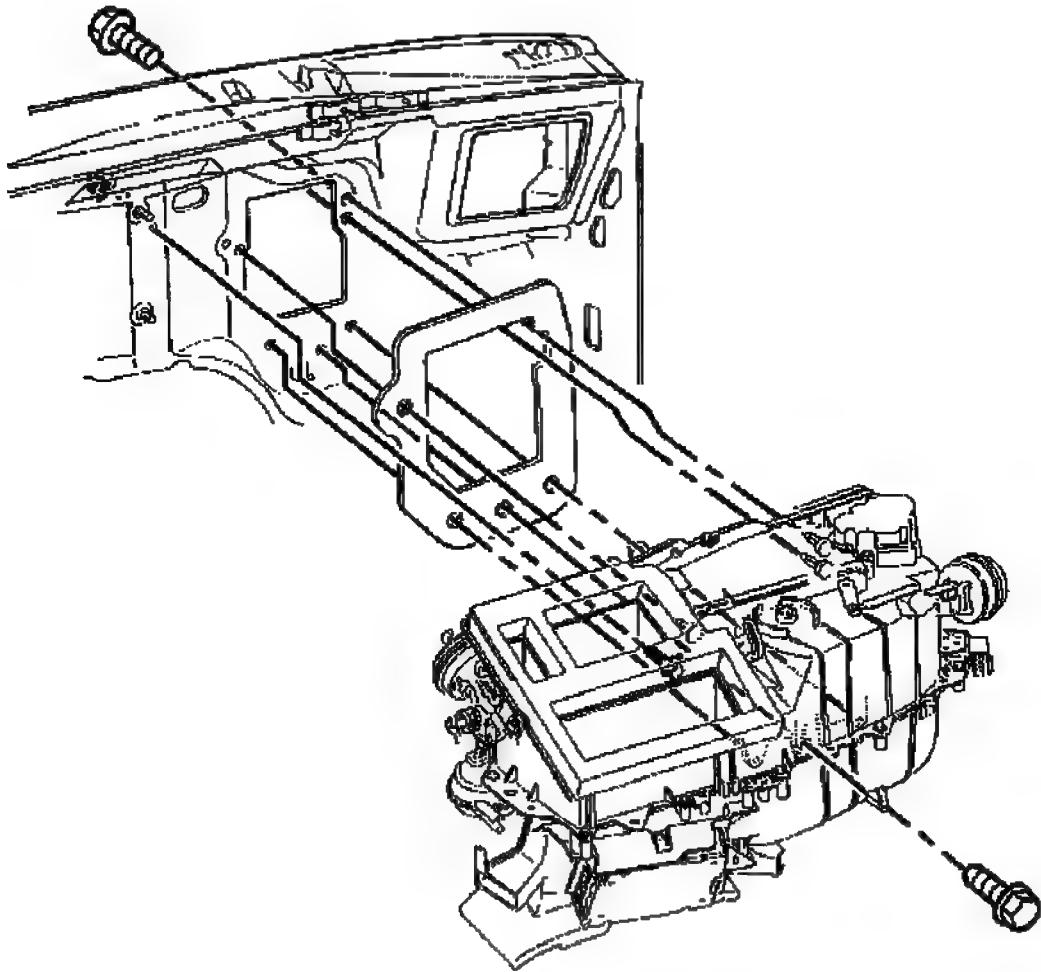
**Fig. 20: Identifying Wheelhouse Panel & Screws**  
Courtesy of GENERAL MOTORS CORP.

9. On vehicles with A/C only, raise and support vehicle.
10. On vehicles with A/C only, remove the front right tire.
11. On the Utility only, remove the A/C evaporator and blower module heat shield screws.
12. On the Utility only, slide the A/C evaporator and blower module heat shield toward the front of the vehicle.
13. Remove the 2 lower heat/vent module mounting nuts.
14. On the Utility only, remove the A/C evaporator and blower module heat shield bracket.
15. Remove the bottom right heat/vent module mounting bolt from inside the vehicle.

**IMPORTANT: The heat/vent mounting stud has a flange on the inside and cannot be removed from under the hood. Stop turning the stud after the threads are off the heat/vent module.**

16. On the Utility only, while an assistant inside the vehicle pulls the bottom right corner of the heat/vent module approximately 2.5 mm (1 in) back, remove the 2 heat/vent module mounting studs.
17. On vehicles with A/C only, lower the vehicle.

18. On vehicles with a 2.2 L engine only, remove the engine wiring harness bracket located at the rear of the intake manifold. Refer to **2.2L 4-CYLINDER**.
19. Remove the HVAC module mounting bolt located at the lower left side of the heater core to heater hose connection.
20. Remove the HVAC module mounting nut located at the lower right side of the heater core to heater connection.



**Fig. 21: Identifying HVAC Module & Bolts**  
Courtesy of GENERAL MOTORS CORP.

**IMPORTANT: The heat/vent mounting stud has a flange on the inside and cannot be removed from under the hood. Stop turning the stud after the threads are off the heat/vent module.**

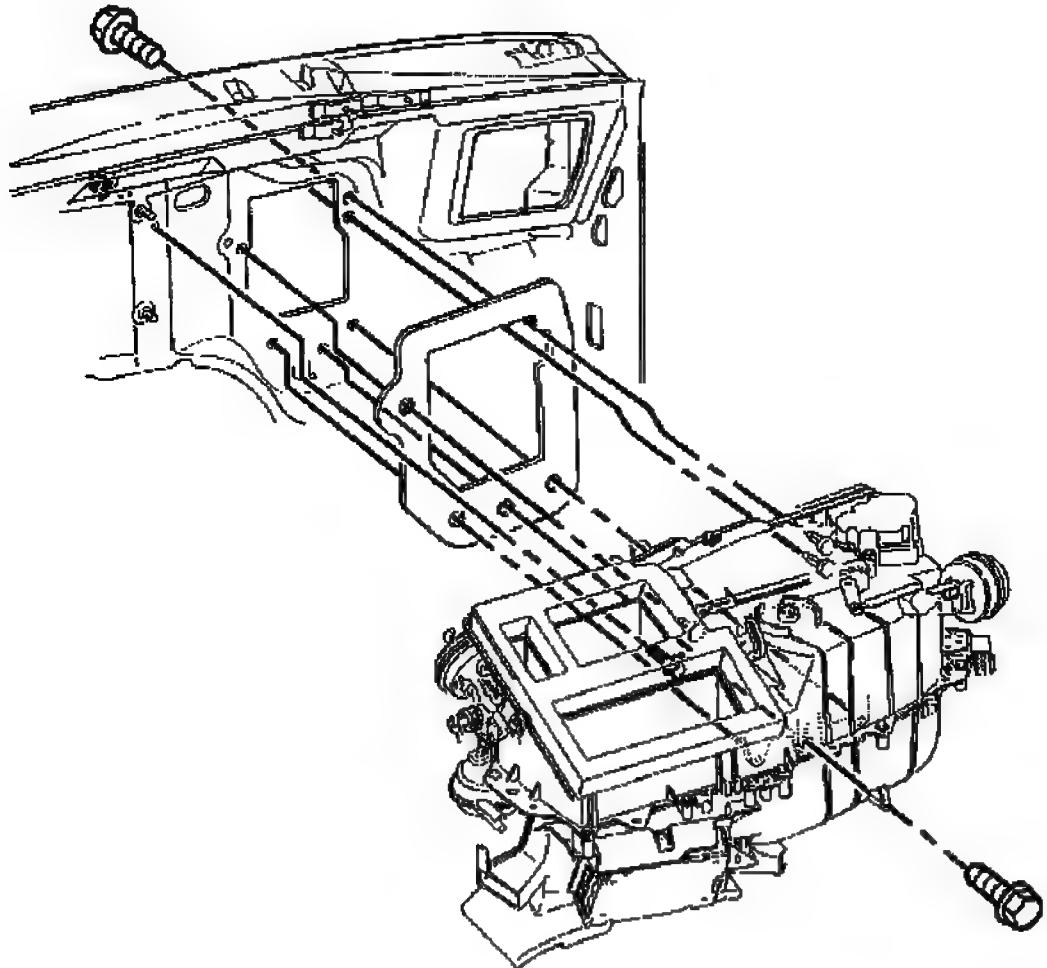
21. On the Utility only, loosen the HVAC module mounting studs until the threads are free

from the heat/vent module.

22. Disconnect all of the electrical connectors from the HVAC module.
23. Disconnect all of the vacuum lines from the heater assembly.
24. Disconnect the heater hoses from the heater core.
25. Remove the HVAC module from the vehicle.

#### Installation Procedure

1. If replacing the HVAC module, transfer the components from the old heat/vent module as necessary.



**Fig. 22: Identifying HVAC Module & Bolts**  
Courtesy of GENERAL MOTORS CORP.

**IMPORTANT: Before installing the HVAC module to the vehicle, ensure**

**that the HVAC module mounting studs are located in the proper positions.**

2. Install the HVAC module to the vehicle.
3. Connect the heater hoses to the heater core.
4. Connect all of the vacuum lines to the heater assembly.
5. Connect all of the electrical connectors to the HVAC module.
6. Install the bottom right HVAC module mounting bolt from inside the vehicle approximately halfway into the threads.

**NOTE: Use the correct fastener in the correct location. Replacement fasteners must be the correct part number for that application. Fasteners requiring replacement or fasteners requiring the use of thread locking compound or sealant are identified in the service procedure. Do not use paints, lubricants, or corrosion inhibitors on fasteners or fastener joint surfaces unless specified. These coatings affect fastener torque and joint clamping force and may damage the fastener. Use the correct tightening sequence and specifications when installing fasteners in order to avoid damage to parts and systems.**

7. On the Utility only, install the HVAC module mounting stud located at the lower right side of the heater core to heater hoses connection in the engine compartment.

### **Tighten**

Tighten the HVAC module mounting stud to 4.5 N.m (40 lb in).

8. On vehicles with A/C only, raise the vehicle.
9. On the Utility only, install the bottom right HVAC mounting studs. Ask an assistant to pull the bottom right corner of the HVAC module back from inside the vehicle.

### **Tighten**

Tighten the heat/vent module mounting studs to 4.5 N.m (40 lb in).

10. On the Utility only, install the A/C evaporator and blower module heat shield bracket.
11. Install the heater/vent module mounting nuts.

### **Tighten**

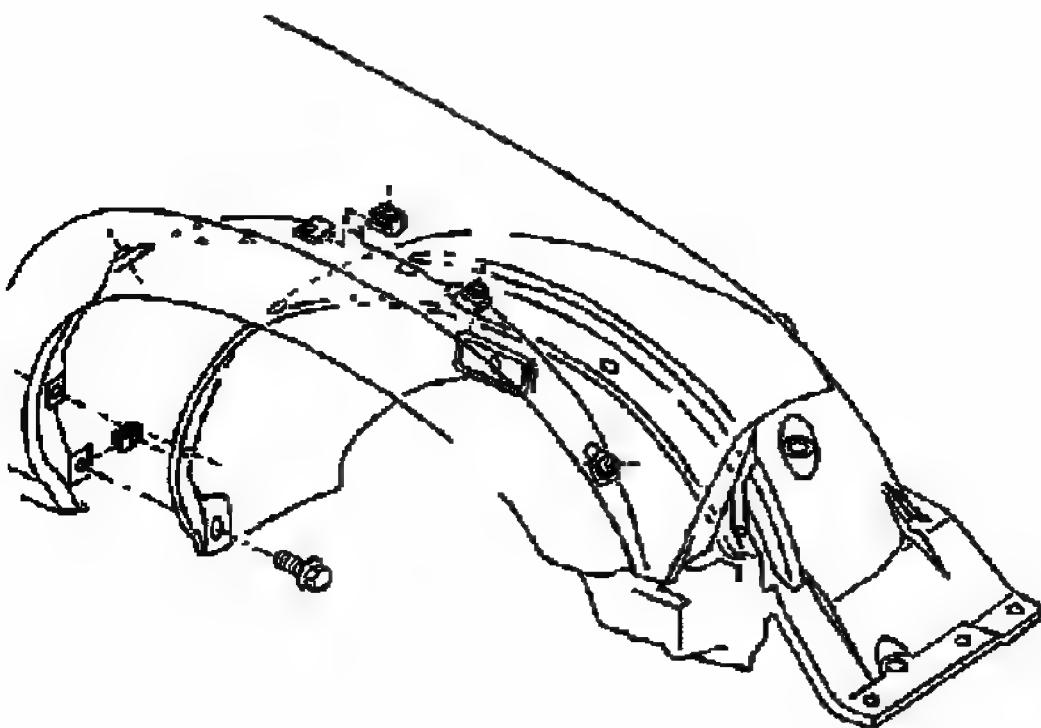
Tighten the HVAC module mounting studs to 4.5 N.m (40 lb in).

12. On the Utility only, slide the A/C evaporator and blower module heat shield into the original position.
13. On the Utility only, install the A/C evaporator and blower module heat shield screws.

**Tighten**

Tighten the A/C evaporator and blower module heat shield screws 2.2 N.m (19 lb in).

14. On vehicles with A/C only, install the right front tire.



**Fig. 23: Identifying Wheelhouse Panel & Screws**

Courtesy of GENERAL MOTORS CORP.

15. On vehicles with A/C only, lower the vehicle.
16. Install the bottom right HVAC module mounting bolt from inside the vehicle.

**Tighten**

Tighten the HVAC module mounting bolt to 4.5 N.m (40 lb in).

17. On vehicles with A/C only, install the right wheel house panel.
18. Install the HVAC module mounting nut located at the lower right side of the heater

core to heater connection.

**Tighten**

Tighten the HVAC module mounting nut to 4.5 N.m (40 lb in).

19. Install the HVAC module mounting bolt located at the lower left side of the heater core to heater hose connection.

**Tighten**

Tighten the HVAC module mounting bolt to 4.5 N.m (40 lb in).

20. On vehicles with the 2.2 L engine only, install the engine wiring harness bracket located at the rear of the intake manifold. Refer to **2.2L 4-CYLINDER**.
21. Install the HVAC module mounting bolt through the blower motor resistor or service access cover opening.

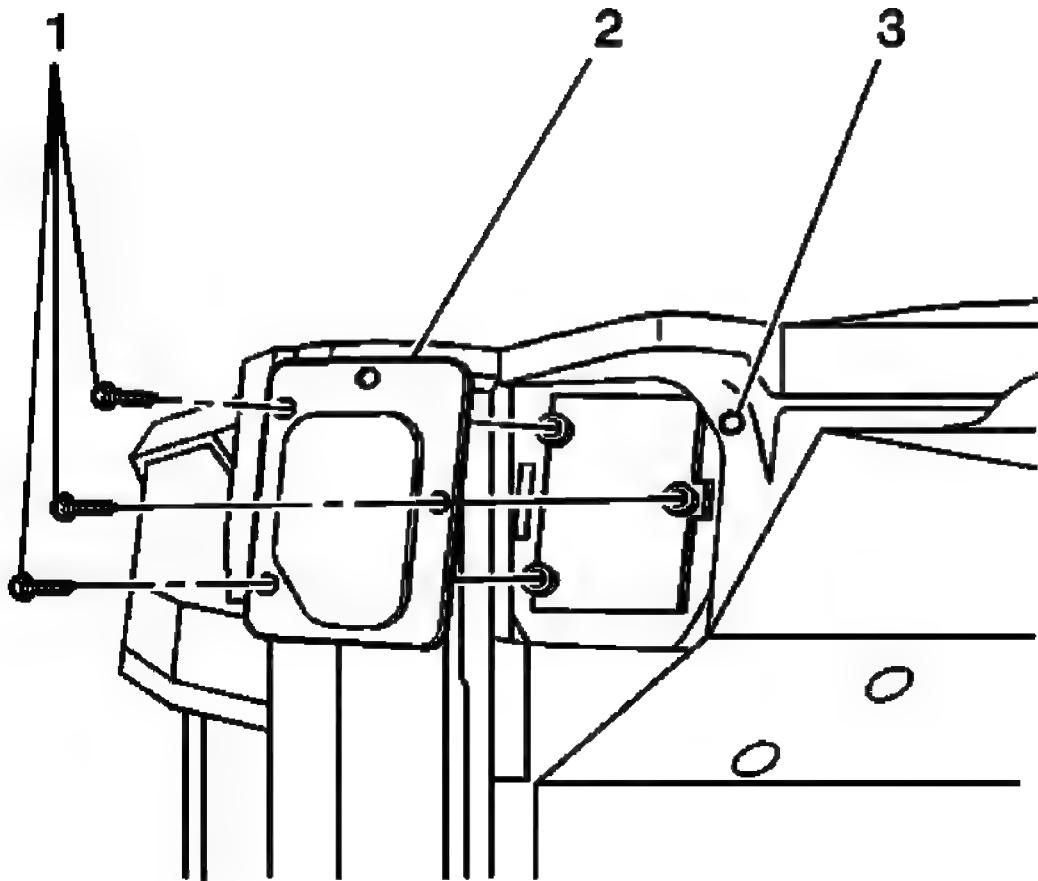
**Tighten**

Tighten the HVAC module mounting bolt to 4.5 N.m (40 lb in).

22. On vehicles without automatic climate control, install the blower motor resistor. Refer to **BLOWER MOTOR RESISTOR**.
23. On vehicles with automatic climate control only, install the service access cover (2).
24. On vehicles with automatic climate control only, install the service access cover mounting screws (1).

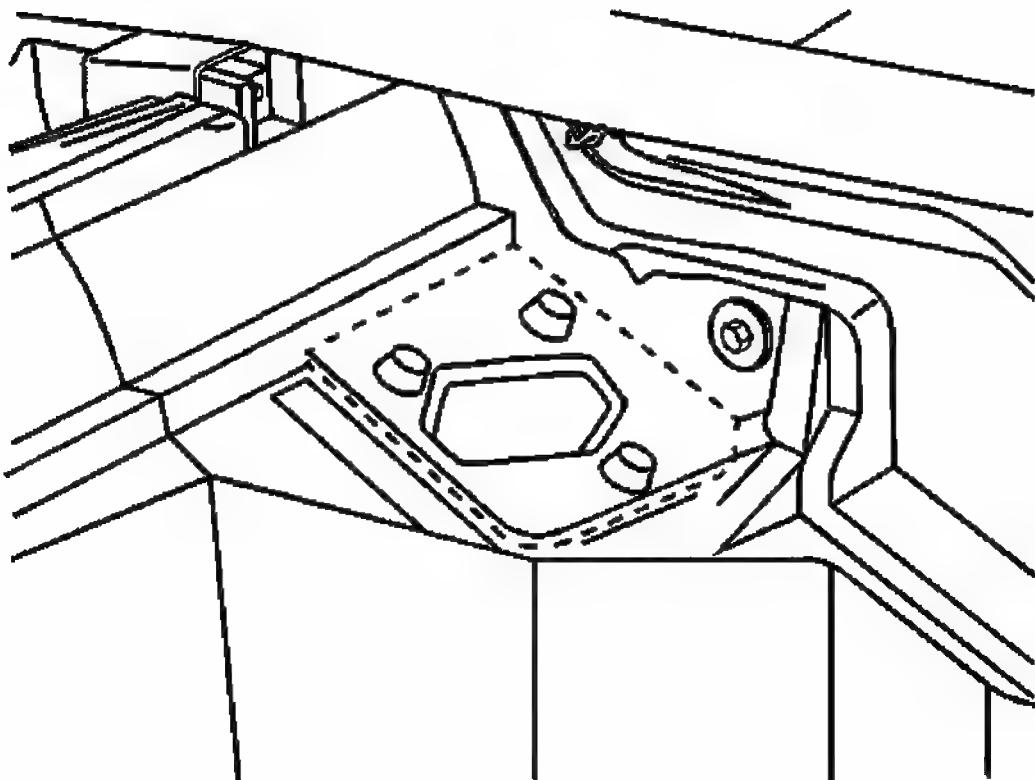
**Tighten**

Tighten the screws to 1.9 N.m (17 lb in).



**Fig. 24: Identifying Service Access Cover & Mounting Screws**  
Courtesy of GENERAL MOTORS CORP.

25. On vehicles with automatic climate control only, install the outer layer of the A/C evaporator and blower module.



**Fig. 25: Identifying Outer Layer Of A/C Evaporator & Blower Module**  
Courtesy of GENERAL MOTORS CORP.

**IMPORTANT: Do not use RTV. Apply the adhesive bead as straight as possible. Allow the adhesive to set for 15 minutes or until the adhesive becomes tacky.**

26. Seal the cut line using black weather-strip adhesive.
27. Refill the engine coolant. Refer to **DRAINING AND FILLING COOLING SYSTEM**.
28. Install the instrument panel. Refer to **INSTRUMENT PANEL**.
29. For m.y. 2001, calibrate the HVAC module actuator. Refer to **ACTUATOR RECALIBRATION**.

## **INSTRUMENT PANEL**

### **Removal Procedure**

1. On vehicles equipped with a manual transmission, remove the shift lever. Refer to **MANUAL TRANSMISSION - NV 3500** or **MANUAL TRANSMISSION - NV**

**3500**

2. On vehicles equipped with an automatic transmission, perform the following steps:
  - 2.1. Apply the park brake.
  - 2.2. Insert the ignition key and turn the ignition switch to the RUN position.
  - 2.3. Depress the brake pedal and shift the transmission to the 1 position.
  - 2.4. Turn the ignition switch to the OFF position.

**CAUTION:** Before servicing any electrical component, the ignition and start switch must be in the OFF or LOCK position and all electrical loads must be OFF, unless instructed otherwise in these procedures. If a tool or equipment could easily come in contact with a live exposed electrical terminal, also disconnect the negative battery cable. Failure to follow these precautions may cause personal injury and/or damage to the vehicle or its components.

3. Disconnect the battery negative cable.

**CAUTION:** This vehicle is equipped with a Supplemental Inflatable Restraint (SIR) System. Failure to follow the correct procedure could cause the following conditions:

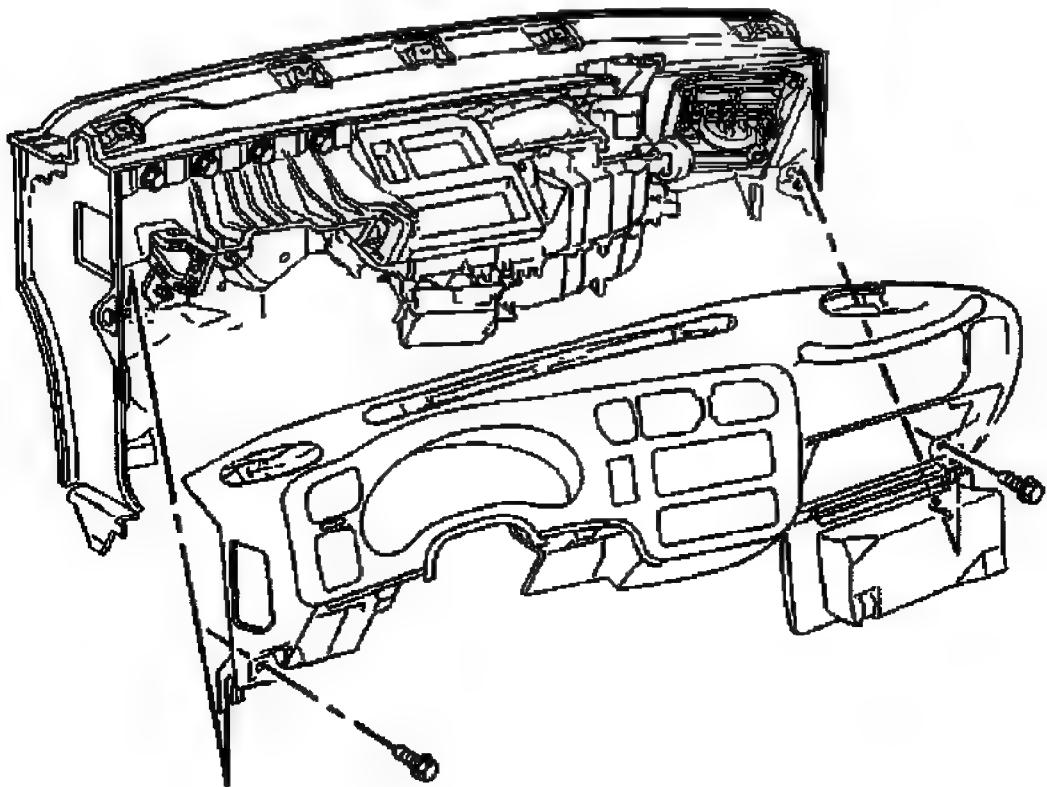
- Air bag deployment
- Personal injury
- Unnecessary SIR system repairs

In order to avoid the above conditions, observe the following guidelines:

- Refer to SIR Component Views in order to determine if you are performing service on or near the SIR components or the SIR wiring.
- If you are performing service on or near the SIR components or the SIR wiring, disable the SIR system. Refer to Disabling the SIR System.

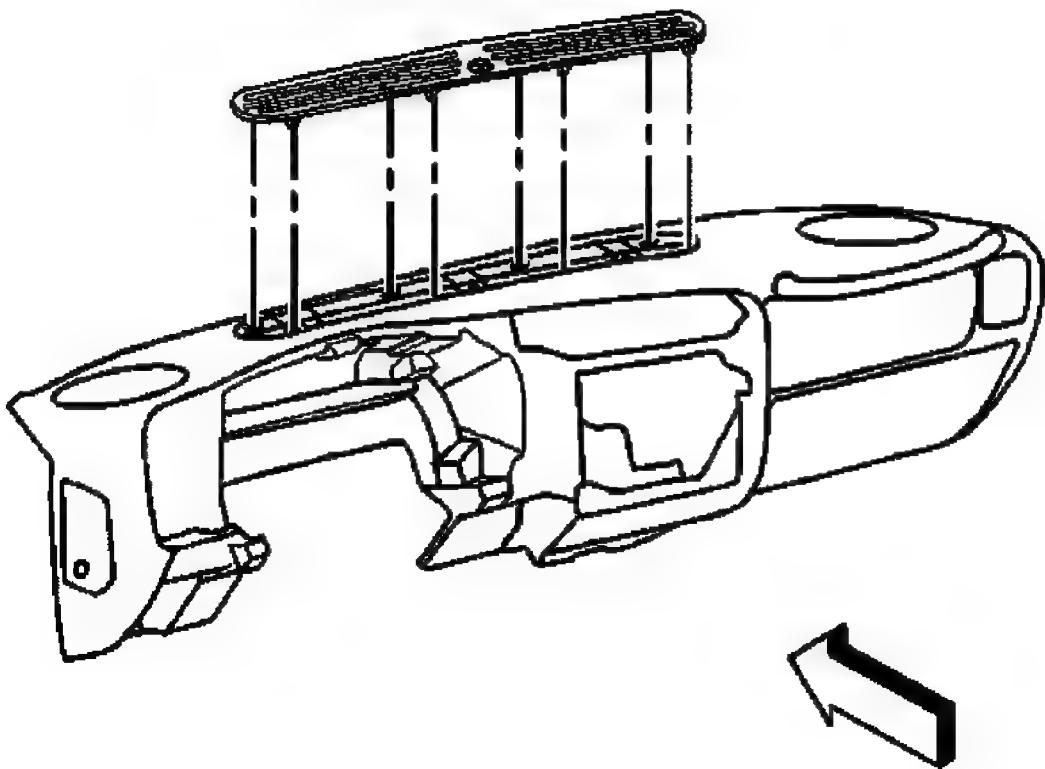
4. Disable the passenger side SIR system. Refer to **DISABLING & ACTIVATING AIR BAG SYSTEM** (m.y. 2000) or **AIR BAG RESTRAINT SYSTEMS** (m.y. 2001).
5. Remove the left sound insulator.
6. Remove the right instrument panel sound insulator.

7. If the vehicle is equipped with a multiple CD changer located in the center console, remove the center console.
8. Remove the center sound insulator.
9. Remove the lower left instrument panel mounting bolt.
10. Remove and retain the instrument panel storage compartment.



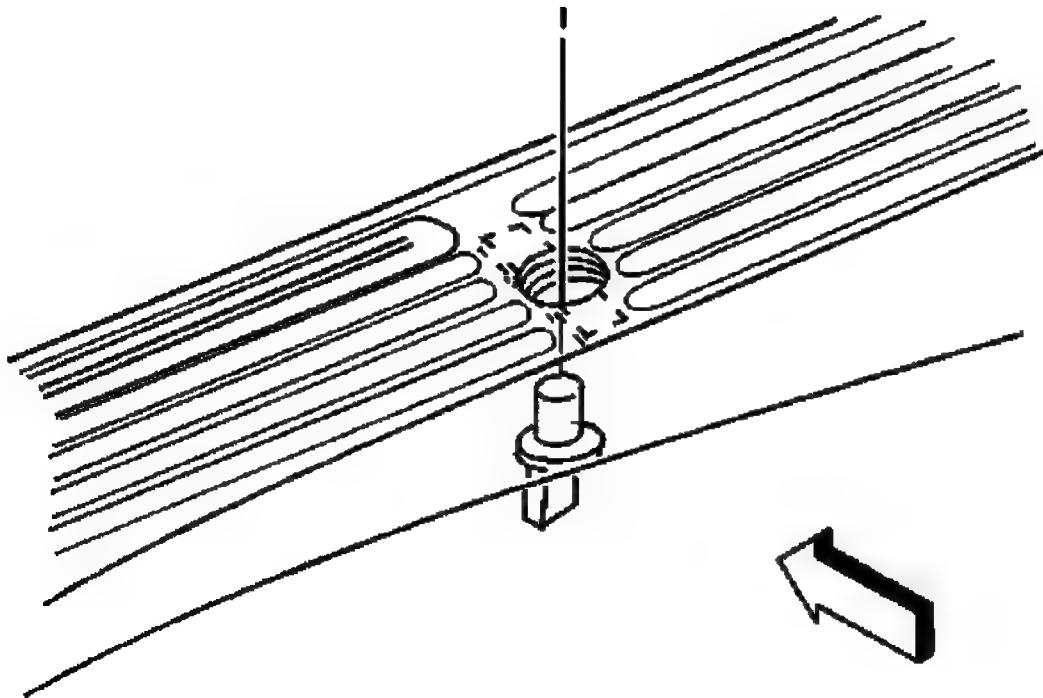
**Fig. 26: Identifying Instrument Panel & Lower Mounting**  
Courtesy of GENERAL MOTORS CORP.

11. Remove the lower right instrument panel mounting bolt.
12. Remove and retain the left and right speakers and the speaker grilles.
13. Use a flat-bladed tool to remove the windshield defroster grille. Retain the windshield defroster grille for use on the replacement IP carrier.



**Fig. 27: Identifying Windshield Defroster Grille**  
Courtesy of GENERAL MOTORS CORP.

14. If the vehicle is equipped with a sunload sensor, twist the sunload sensor 1/4 turn counterclockwise in order to detach it from the windshield defroster grille. Retain the sunload sensor for use on the replacement IP carrier.

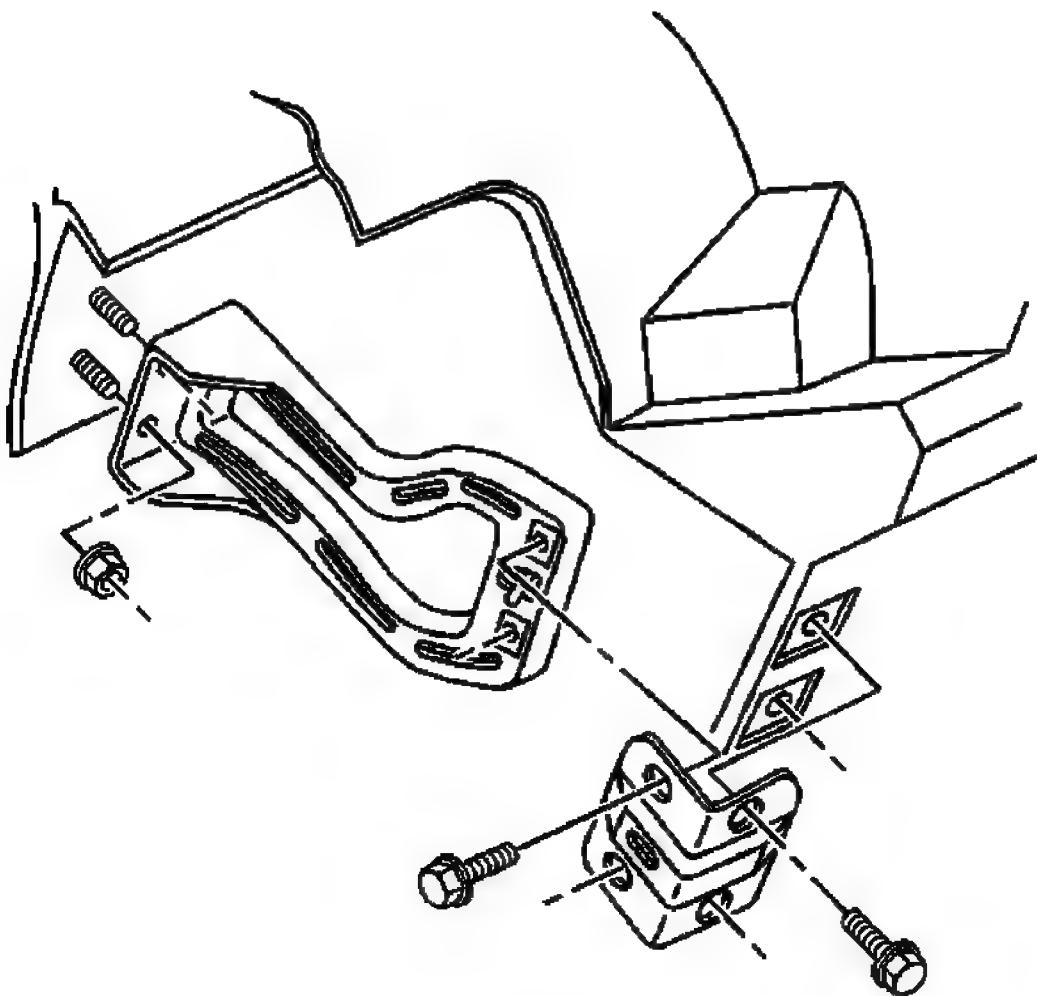


**Fig. 28: Identifying Sunload Sensor**

Courtesy of GENERAL MOTORS CORP.

**IMPORTANT: Always disconnect the brown electrical from the BCM before disconnecting the purple electrical connector from the BCM.**

15. Disconnect the brown electrical connector from the body control module (BCM).
16. Disconnect the purple electrical connector from the body control module (BCM).
17. Remove the knee bolster.
18. Remove and retain the instrument panel cluster.
19. Remove and retain the radio.
20. Remove and retain the HVAC control assembly. Refer to **A/C-HEATER CONTROL PANEL**
21. Remove the left and right instrument panel driver knee bolster brackets.

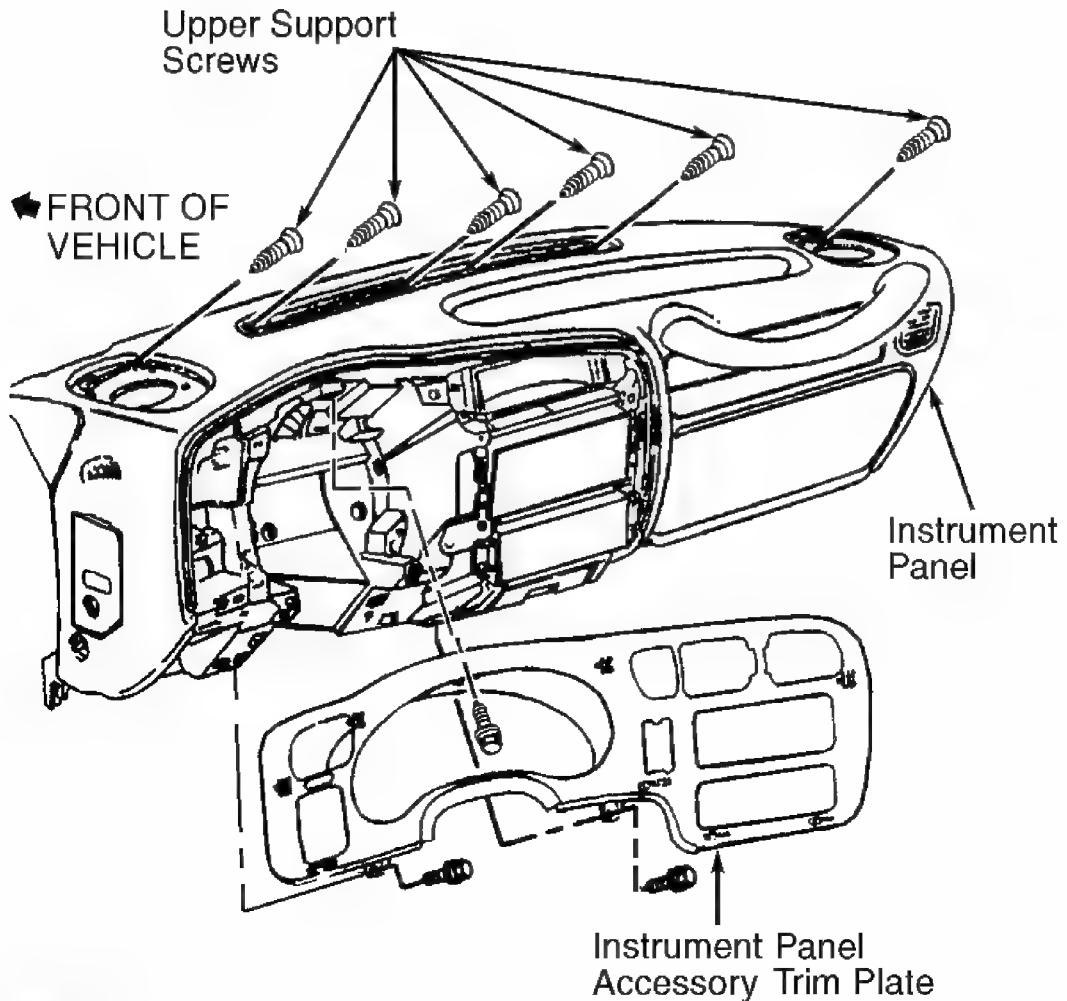


**Fig. 29: Identifying Knee Bolster Bracket**  
Courtesy of GENERAL MOTORS CORP.

22. Lower the steering column for clearance. Refer to the appropriate procedure for standard or tilt steering wheel.

**IMPORTANT: Label all of the connections in order to avoid improper installation.**

23. Remove the top instrument panel screws.



G98H03139

**Fig. 30: Exploded View Of Instrument Panel & Accessory Trim Plate**  
Courtesy of GENERAL MOTORS CORP.

24. Roll the instrument panel down.
25. Disconnect the electrical connections, as needed.
26. Remove the fastener that retains the radio antenna cable to the instrument panel.
27. Remove the instrument panel from the vehicle.
28. If replacing the instrument panel carrier, retain parts for assembly onto the new instrument panel carrier.

#### **Installation Procedure**

1. Install retained parts from the original instrument panel.
2. Install the instrument panel to the vehicle.

**NOTE:** Use the correct fastener in the correct location. Replacement fasteners must be the correct part number for that application. Fasteners requiring replacement or fasteners requiring the use of thread locking compound or sealant are identified in the service procedure. Do not use paints, lubricants, or corrosion inhibitors on fasteners or fastener joint surfaces unless specified. These coatings affect fastener torque and joint clamping force and may damage the fastener. Use the correct tightening sequence and specifications when installing fasteners in order to avoid damage to parts and systems.

3. Install the fastener that retains the radio antenna cable to the instrument panel.

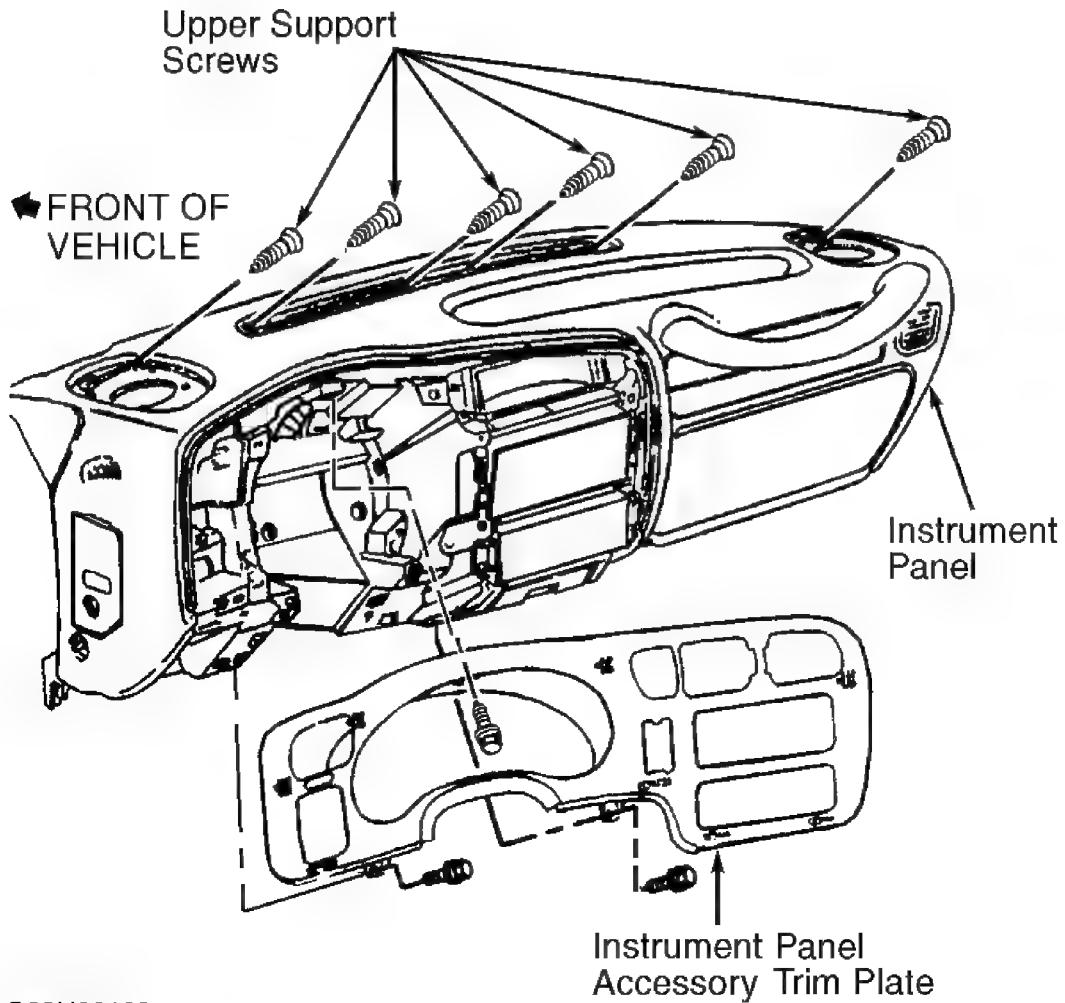
**Tighten**

Tighten the fastener to 1.9 N.m (17 lb in).

4. Connect the electrical connectors, as needed.
5. Roll the instrument panel up.
6. Install the top instrument panel screws.

**Tighten**

Tighten the screws to 1.9 N.m (17 lb in).



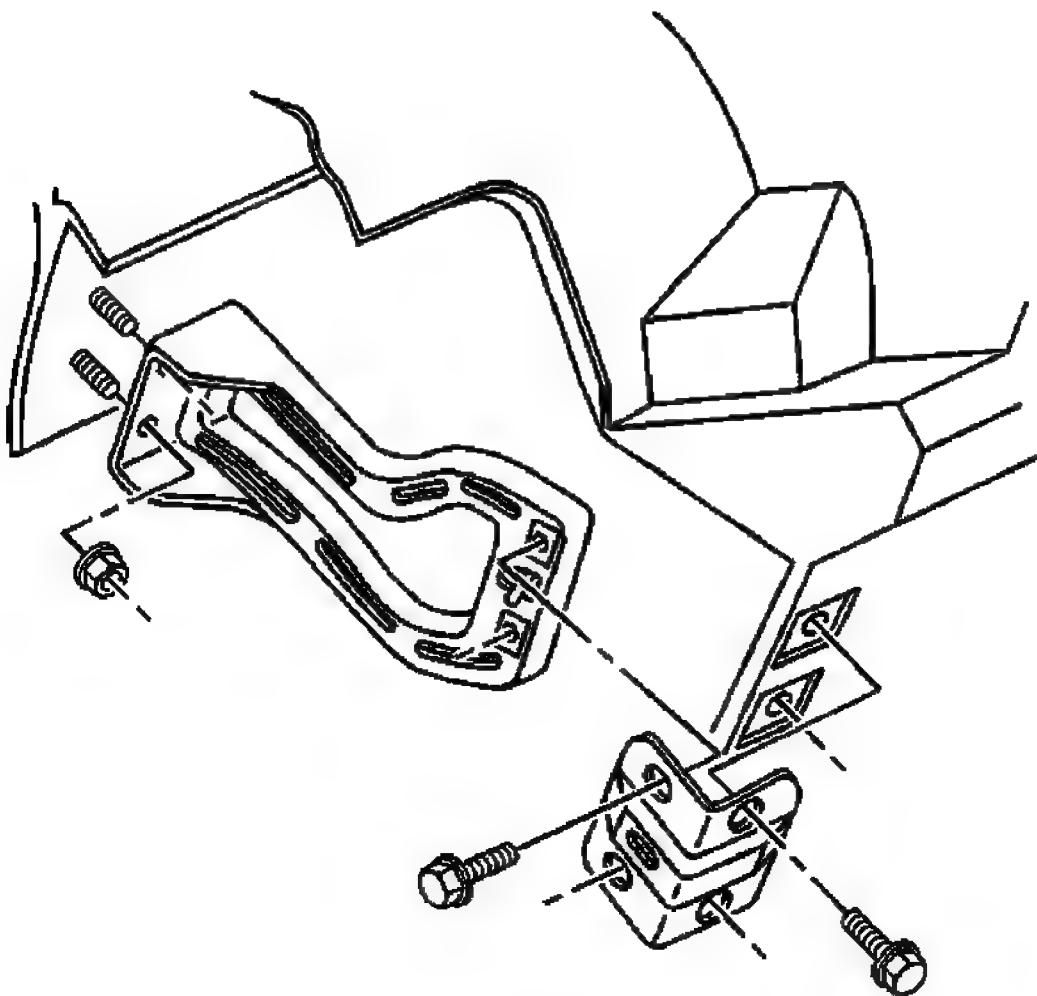
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**Fig. 31: Exploded View Of Instrument Panel & Accessory Trim Plate**  
Courtesy of GENERAL MOTORS CORP.

7. Raise the steering column into position. Refer to the appropriate procedure for standard or tilt steering wheel.
8. Install the left and right instrument panel driver knee bolster brackets.

### **Tighten**

Tighten the screws/bolts to 6.3 N.m (56 lb in).



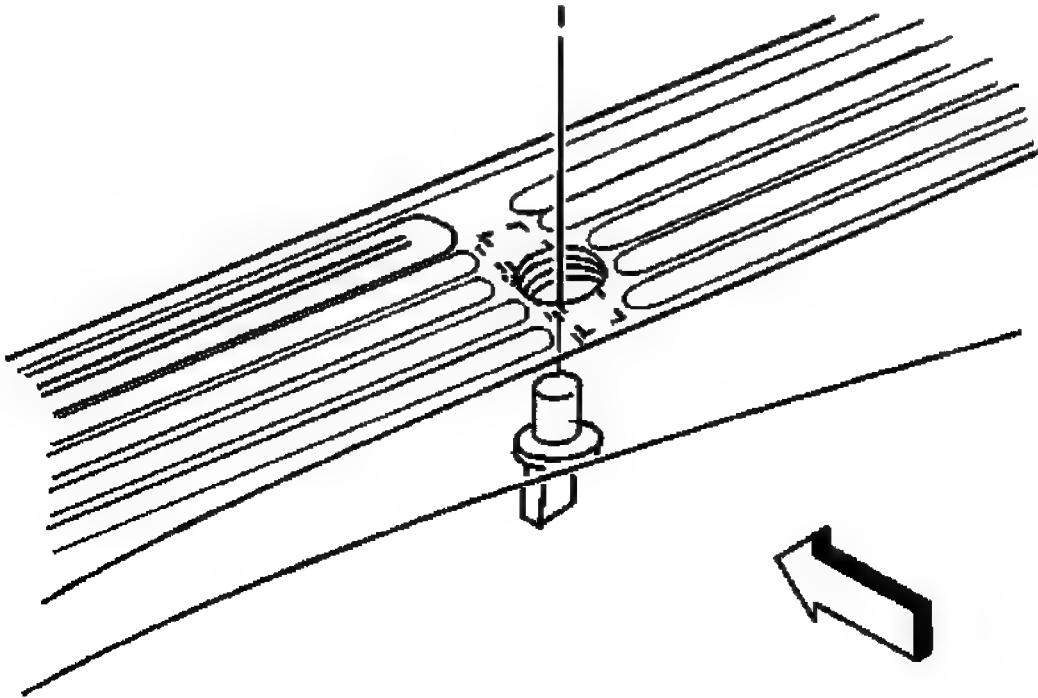
**Fig. 32: Identifying Knee Bolster Bracket**

Courtesy of GENERAL MOTORS CORP.

9. Enable the passenger side SIR system. Refer ACTIVATING SYSTEM (m.y. 2000) or ACTIVATING SYSTEM (m.y. 2001).
10. Install the HVAC control assembly to the instrument panel. Refer to A/C-HEATER CONTROL PANEL
11. Install the radio.
12. Install the instrument cluster.
13. Install the knee bolster.

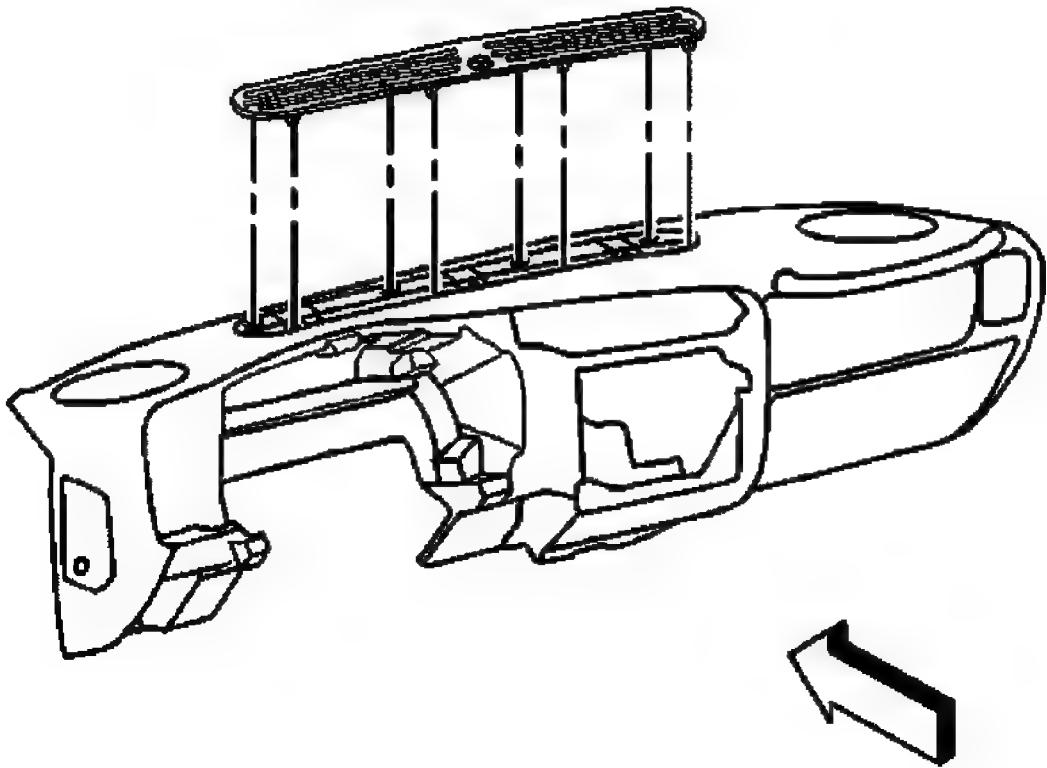
**IMPORTANT: Always connect the purple electrical connector to the BCM before connecting the brown electrical connector to the BCM.**

14. Connect the purple electrical connector to the body control module (BCM).
15. Connect the brown electrical connector to the body control module (BCM).
16. If the vehicle is equipped with a sunload sensor, install the sensor to the defroster grille by twisting the sensor 1/4 turn clockwise.



**Fig. 33: Identifying Sunload Sensor**  
Courtesy of GENERAL MOTORS CORP.

17. Install the windshield defroster grille by carefully pressing the grille into place.
18. Install the left and right speakers and the speaker grilles.



**Fig. 34: Identifying Windshield Defroster Grille**  
Courtesy of GENERAL MOTORS CORP.

19. Install the lower right instrument panel mounting bolt.

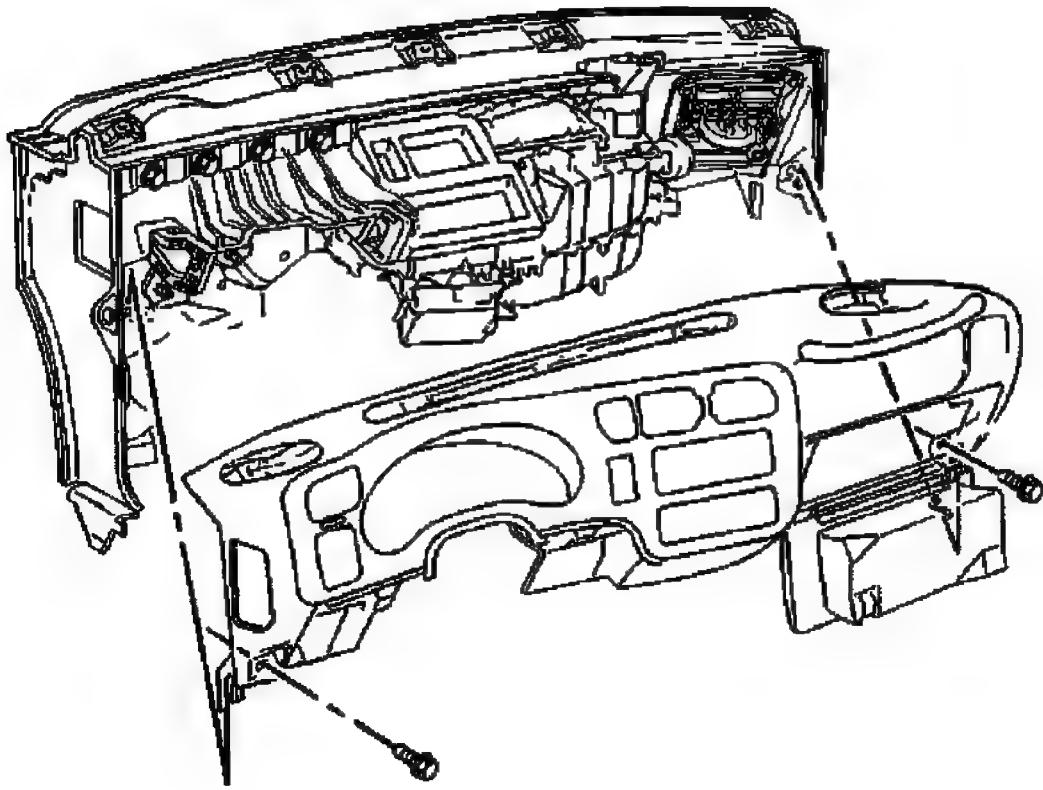
**Tighten**

Tighten the bolt to 11.5 N.m (102 lb in).

20. Install the instrument panel storage compartment.
21. Install the lower left instrument panel bolt.

**Tighten**

Tighten the bolt to 11.5 N.m (102 lb in).



**Fig. 35: Identifying Instrument Panel & Lower Mounting**  
Courtesy of GENERAL MOTORS CORP.

22. Install the center sound insulator.
23. Install the right sound insulator.
24. Install the center console to the vehicle, if removed.
25. Install the left sound insulator.
26. Connect the battery negative cable.
27. On vehicles equipped with an automatic transmission, perform the following steps:
  - 26.1. Turn the ignition switch to the RUN position.
  - 26.2. Depress the brake pedal and shift the transmission to the PARK position.
  - 26.3. Release the park brake.
28. On vehicles equipped with a manual transmission, install the shift lever. Refer to **MANUAL TRANSMISSION - NV 3500** or **MANUAL TRANSMISSION - NV 3500**.

## **TORQUE SPECIFICATIONS**

### **TORQUE SPECIFICATIONS**

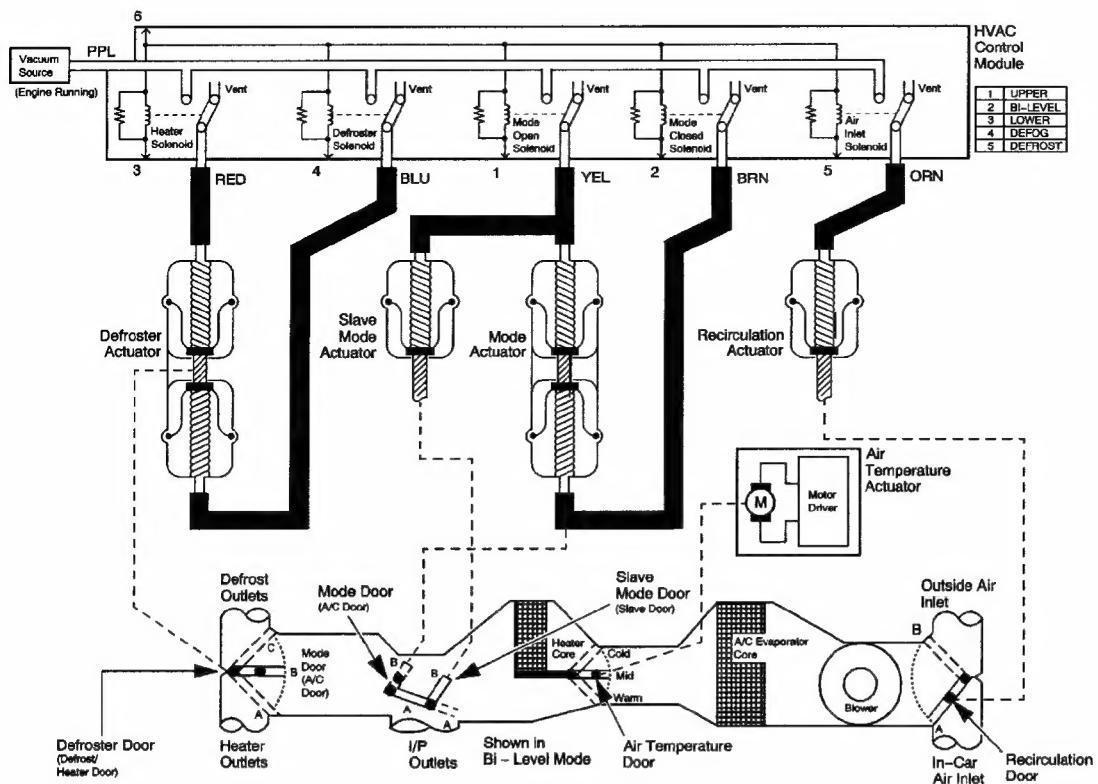
# 2001 Chevrolet S10 Pickup

## 2000-01 MANUAL A/C-HEATER SYSTEMS Blazer, Jimmy, Sonoma & S10 Pickup

Application	Ft. Lbs. (N.m)
Accumulator Inlet Fitting	30 (41)
Compressor Bolt	37 (50)
Compressor Hose Assembly Bolt <sup>(1)</sup>	24 (33)
Compressor-To-Rear Bracket Bolt (2.2L)	23 (31)
Condenser Inlet Fitting <sup>(1)</sup>	18 (24)
Evaporator-To-Accumulator Fitting <sup>(1)</sup>	21 (28)
Evaporator-To-Condenser Line Fitting <sup>(1)</sup>	18 (24)

(1) Use new sealing washers.

## VACUUM DIAGRAMS



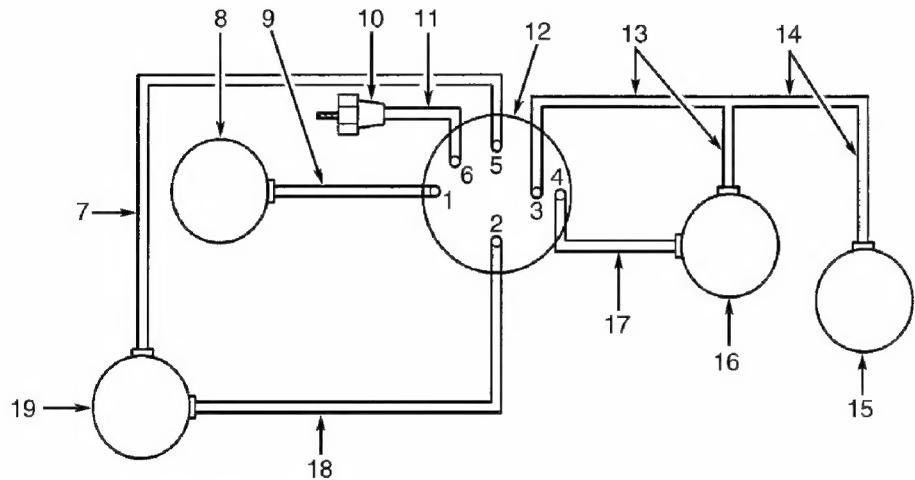
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**Fig. 36: Manual A/C-Heater System Vacuum Diagram (2000 Blazer, Jimmy, Sonoma & S10 Pickup)**

Courtesy of GENERAL MOTORS CORP.

# 2001 Chevrolet S10 Pickup

## 2000-01 MANUAL A/C-HEATER SYSTEMS Blazer, Jimmy, Sonoma & S10 Pickup



1. Recirculated Air Inlet Port	11. Vacuum Hose-Black
2. Heat Port	12. Rotary Vacuum (Mode) Switch
3. Heat Mode Port	13. Vacuum Hose-Yellow
4. A/C Mode Port	14. Vacuum Hose-Gray
5. Defrost Port	15. Heater Slave Valve Actuator
6. Source Vacuum Port	16. Mode Actuator
7. Vacuum Hose-Blue	17. Vacuum Hose-Brown
8. Recirculation Actuator	18. Vacuum Hose-Red
9. Vacuum Hose-Orange	19. Defroster Actuator
10. Vacuum Source	

### Vacuum Supply

Mode	Port 1	Port 2	Port 3	Port 4	Port 5	Port 6
DEFINITION: This table shows the state of the vacuum supply at the vacuum ports shown in the Vacuum Routing Diagram for each mode switch position. The port numbers are located on the vacuum rotary (mode) switch.						
OFF	VENT	VAC	VAC	VENT	VENT	VAC
MAX (C60)	VAC	VAC	VENT	VAC	VENT	VAC
NORM (C60)	VENT	VAC	VENT	VAC	VENT	VAC
BT-LEV	VENT	VAC	VENT	VENT	VENT	VAC
VENT	VENT	VAC	VENT	VAC	VENT	VAC
HTR	VENT	VAC	VAC	VENT	VENT	VAC
BLEND	VENT	VENT	VAC	VENT	VENT	VAC
DEF	VENT	VENT	VAC	VENT	VAC	VAC
NOTE: No source vacuum, insufficient source vacuum, or an improperly routed vacuum supply will cause air delivery to be improper. Refer to Air Delivery Improper in HVAC Systems - Manual for proper diagnosis.						

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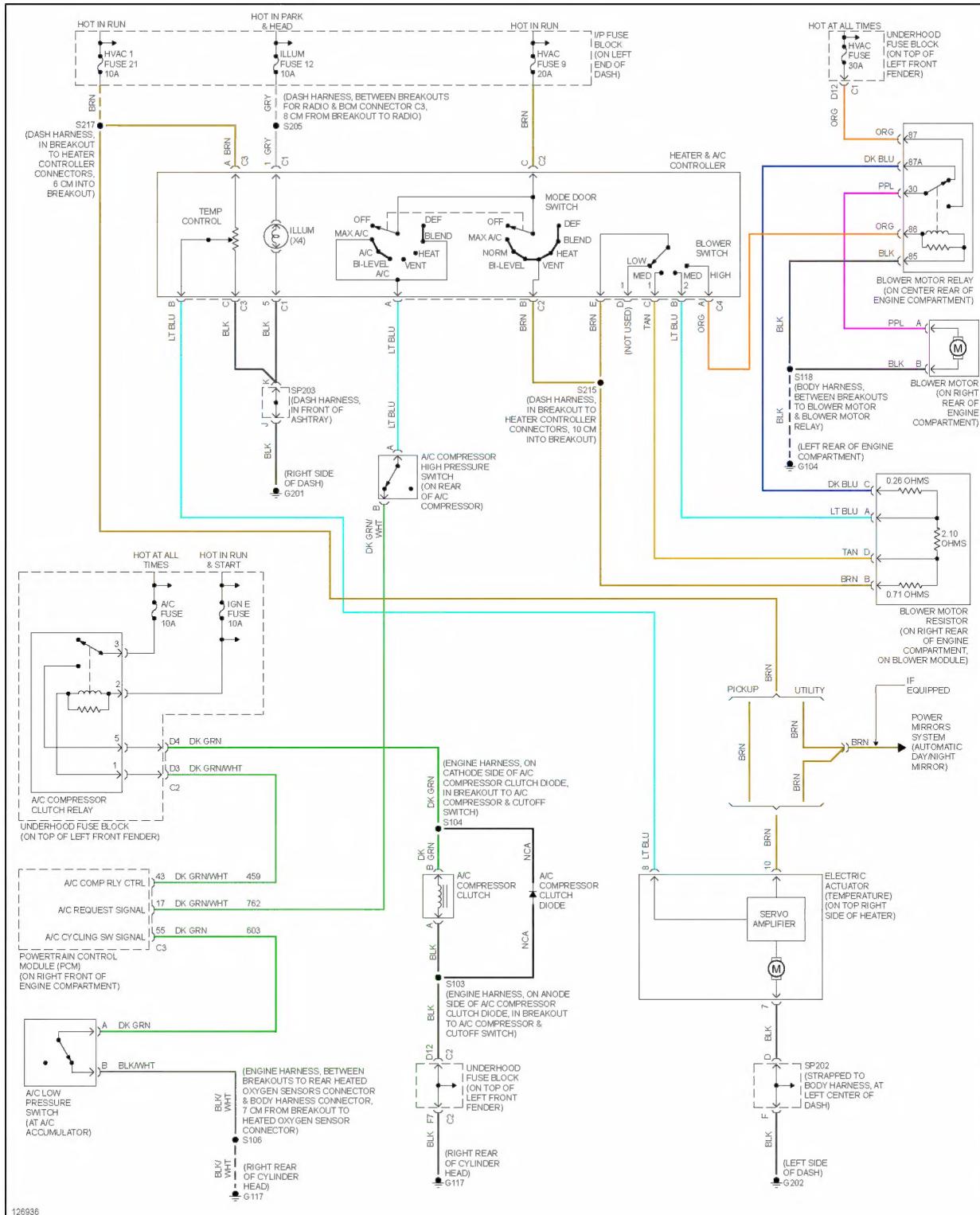
**Fig. 37: Manual A/C-Heater System Vacuum Diagram (2001 Blazer, Jimmy, Sonoma & S10 Pickup)**

Courtesy of GENERAL MOTORS CORP.

## WIRING DIAGRAMS

## 2001 Chevrolet S10 Pickup

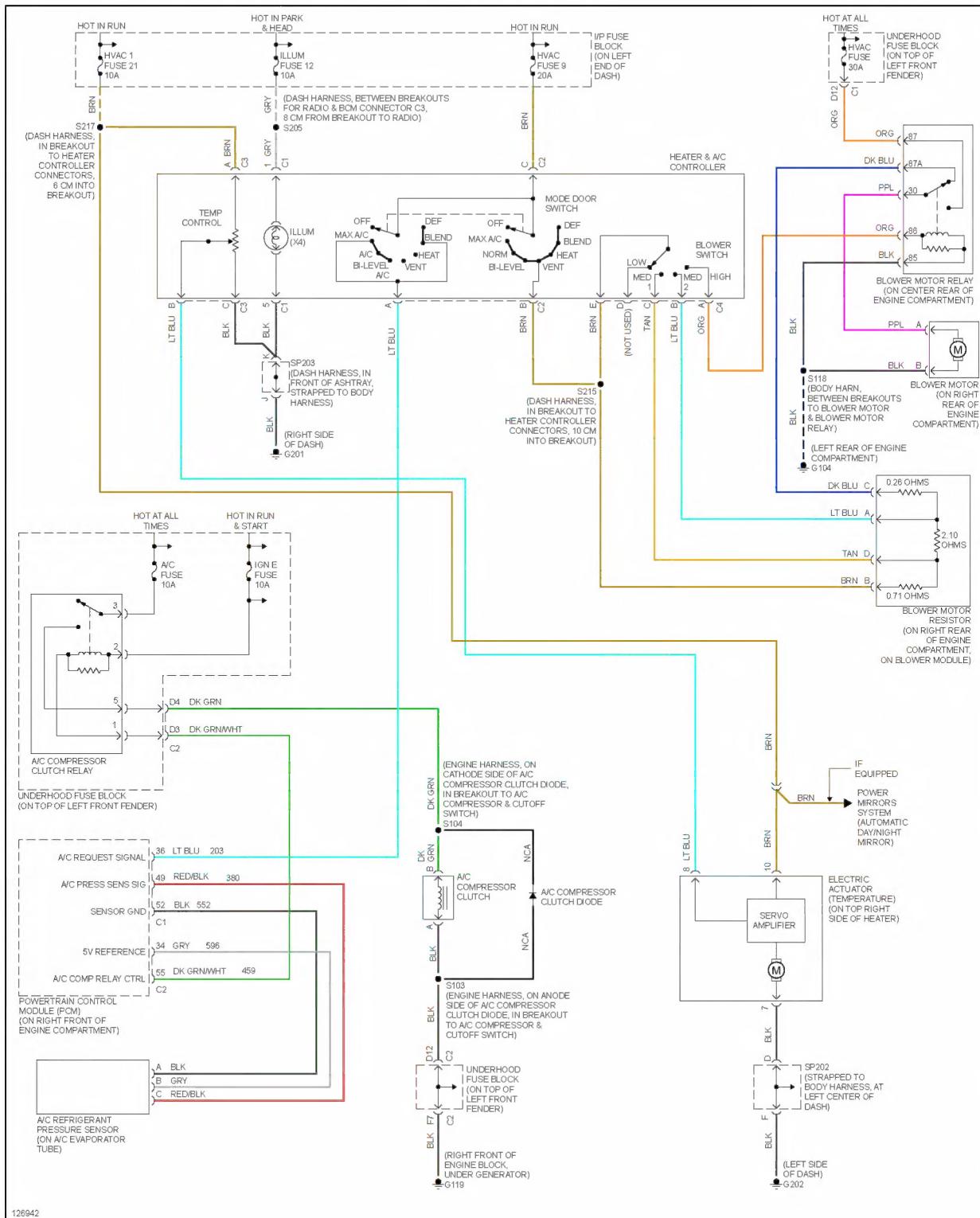
2000-01 MANUAL A/C-HEATER SYSTEMS Blazer, Jimmy, Sonoma & S10 Pickup



**Fig. 38: Manual A/C-Heater System Wiring Diagram (2000-01 Blazer, Jimmy, Sonoma & S10 Pickup With 4.3L Engine)**

# 2001 Chevrolet S10 Pickup

## 2000-01 MANUAL A/C-HEATER SYSTEMS Blazer, Jimmy, Sonoma & S10 Pickup



**Fig. 39: Manual A/C-Heater System Wiring Diagram (2000-01 Sonoma & S10 Pickup With 2.2L Engine)**